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Service Manual

ORDER NO.
CRT1254

BRIDGEABLE POWER AMPLIFIER

GM-2000A EW

POWER AMPLIFIER

GM-1000A EW

NOTE: This service manual is designed to be used together with Model GM-2000/EW Service Manual (CRT1156). Refer to it for finding parts numbers and circuit description, etc. which are not shown in this manual.

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ELECTRICAL PARTS LIST

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ** and *.*
  *** : GENERALLY MOVES FASTER THAN * .*
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S □□□J
  Chip Capacitor (except for CQS. . . . .)
  CKS. . . . ., CCS. . . . .

Model Number :GM-2000A/EW

Unit Number :
Unit Name :Main Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1 3		TC4066BP
**	IC 2 4		NJM2068S
**	IC 5		μPC4570HA
**	IC 6 7		μPC1298V
**	IC 8		μPC494C
**	Q 1 2 3 24 45 46 47		2SC2458
**	Q 4 25		2SC3113
**	Q 5 6 7 8 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1705
**	Q 15 16		2SB1154
**	Q 17 18		2SD1768S
**	Q 21		2SB911M
**	Q 22 36		2SD2037
**	Q 23 26		2SA1048
**	Q 27 28 29 34		2SC2458
**	Q 30 31		2SC3623A
**	Q 33		2SB911M
**	Q 35		2SB1357
**	Q 37 38 39 40		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 1 2 3 4 11 15 16 17		1SS176
*	D 5 12 13 34		ERA15-02VH
*	D 6		HZS7A1L
*	D 7		HZS9R1JB1
*	D 8		HZS9R1JB1
*	D 9 10		RD4R7JSB2
*	D 20		ERA15-02VH
*	D 21		HZ7B3L
*	D 22 33		1SS176
*	D 23 24		HZS4R3EB1
*	D 25 26 27 28		AG01
*	D 29		RBV-402L
*	D 30 35	Surge Absorber	ERZ-M10DK270
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100μH	CTF-113
	L 9 10	Choke Coil	CTH1036
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1031
	T 1	Transformer	CTT1009
**	SW 1 2 3 4	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume	CCS1095
**	VR 2 3	Semi-fixed 1.5kΩ (B)	VRTB6VS152
	RY 1	Relay	CSR1010
**	FU 1	Fuse 15A	CEK1137

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2 105 106		RD1/4PS392JL
	R 3 4		RD1/4PS132JL
	R 5 6		RD1/4PS104JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 13		RD1/4PS911JL
	R 14 71 72		RD1/4PS751JL
	R 15 16 18		RD1/4PS912JL
	R 17 19 20 21 22 68		RD1/4PS103JL
	R 23 24 27 28		RD1/4PS821JL
	R 25 26 29 30 96		RD1/4PS104JL
	R 31 32 67 73 136		RD1/4PS223JL
	R 33 34 35 36		RD1/4PS153JL
	R 39 40 128 129		RD1/4PS332JL

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 41 42 69 70 76 77 97 126 127 137		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 47 48		RD1/4PS183JL
	R 49 50 51 52 53 54 55 56	0.22Ω/2W	CCN1013
	R 57 58 111 121		RD1/4PS102JL
	R 59 60		RD1/4PS393JL
	R 61 62		RS1/2P100JL
	R 63 64		RD1/4PS564JL
	R 65 66 75		RD1/4PS473JL
	R 78 100 101 102 104 108		RD1/4PS103JL
	R 79		RD1/4PM102J
	R 80		RD1/4PS222JL
	R 83		RD1/4PS221JL
	R 86 135 145 149		RD1/4PS472JL
	R 88 89 133		RD1/4PS102JL
	R 90		RD1/4PS823JL
	R 91		RD1/4PS331JL
	R 92	Thermister	CCX-016
	R 93		RD1/4PS822JL
	R 94		RD1/4PS223JL
	R 95		RD1/4PS472JL
	R 99		RD1/4PS152JL
	R 107		RD1/4PS123JL
	R 109 110 123 125 139 142		RD1/4PS103JL
	R 124		RD1/4PS333JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 138		RD1/4PS561JL
	R 140		RD1/4PS242JL
	R 141		RD1/4PS432JL
	R 143 144		RS1/2P220JL
	R 148		RD1/4PS681JL
	R 150 151		RD1/4PS330JL
	R 152 153		RS1P152JL
	R 154 155		RD1/4PS220JL
	R 156 157 158 159		RD1/4PS820JL
	R 160		RD1/4PS183JL
	R 161 162		RD1/4PS223JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2 19 20		CEKA100M16
	C 3 4		CEKA010M50
	C 5 6 23 24		CKCYB471K50
	C 7 8 40		CEA471M10L2
	C 9 10 15 16 17 18		CEA010M50L2
	C 11 12	10μF/16V	CCH1034
	C 13 14 81 82		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32 74 75		CQMA102K50
	C 33 36		CQMA223K50
	C 34 42 46 79 80		CEA100M16L2
	C 35		CEA4R7M25L2
	C 37		CEA220M16L2
	C 38 39	2200μF/35V	CCH1028
	C 41 43 45 52		CEA101M10L2
	C 47 49 50	470μF/16V	CCH-114
	C 48	220μF/10V	CCH1036
	C 51		CEA4R7M25L2
	C 53		CEA101M16L2
	C 54		CKPYB102K50L
	C 56 57 89		CQMA104K50
	C 58 59 60 61	100μF/10V	CCH1053
	C 62 63	3300μF/16V	CCH1023
	C 64 65		CQMA223K50
	C 66 67	2200μF/35V	CCH1024
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M35L2
	C 78 87		CQMA103K50
	C 83		CEA220M16L2
	C 85 86		CCH1035
	C 88		CEA100M16L2

Model Number : GM-1000A/EW

Unit Number :
Unit Name :Main Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1		TC4066BP
**	IC 2 4		NJM2068S
**	IC 5		μPC4570HA
**	IC 6 7		μPC1298V
**	IC 8		μPC494C
**	Q 1 2 24 27 28 29 34 47		2SC2458
**	Q 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1271
**	Q 15 16		2SB946
**	Q 17 18		2SD1768S
**	Q 21		2SB1240
**	Q 22		2SD1227M
**	Q 23 26		2SA1048
**	Q 25		2SC3113
**	Q 30 31		2SC3623A
**	Q 33		2SB1240
**	Q 35		2SB1357
**	Q 36		2SD2037
**	Q 37 38		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 3 4 11 15 16 17 22 33		1SS176
*	D 5 12 13 34		ERA15-02VH
*	D 6		HZS7A1L
*	D 7		HZS16JB1
*	D 8		HZS9R1JB1
*	D 9 10		HZS7R5JB3
*	D 20		ERA15-02VH
*	D 21		HZ7B3L
*	D 23 24		HZS10JB1
*	D 25 26 27 28		ERA91-02
*	D 29		RBV-402L
*	D 30 35	Surge Absorber	ERZ-M10DK270
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100μH	CTF-113
	L 9 10	Choke Coil	CTH1034
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1033
	T 1	Transformer	CTT1010
**	SW 1	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume	CCS1095
**	VR 2 3	Semi-fixed 1.5kΩ (B)	VRTB6VS152
	RY 1	Relay	CSR1010
**	FU 1	Fuse 10A	CEK1136

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2 105 106		RD1/4PS392JL
	R 3 4		RD1/4PS132JL
	R 5 6		RD1/4PS104JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 15 16 17 18 19 20 21 22		RD1/4PS103JL
	R 23 24		RD1/4PS182JL
	R 31 32 67		RD1/4PS223JL
	R 33 34 47 48		RD1/4PS123JL
	R 35 36		RD1/4PS153JL
	R 39 40 128 129		RD1/4PS332JL
	R 41 42 69 70 80 86 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 57 58 111 121 133		RD1/4PS102JL
	R 59 60		RD1/4PS683JL
	R 61 62		RD1/4PM100J
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 68 100 101 102 104 108		RD1/4PS103JL
	R 83		RD1/4PS221JL
	R 88 89 95 135 137 145 149		RD1/4PS472JL
	R 90		RD1/4PS823JL
	R 91		RD1/4PS331JL
	R 92	Thermister	CCX-016
	R 93		RD1/4PS822JL
	R 94		RD1/4PS223JL
	R 96		RD1/4PS104JL
	R 99		RD1/4PS152JL
	R 107		RD1/4PS123JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS333JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134 141		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 146 147		RD1/4PS820JL
	R 150 151		RD1/4PS100JL
	R 152 153		RS1P152JL
	R 160		RD1/4PS183JL
	R 161 162		RD1/4PS223JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2 11 12 19 20		CEKA100M16
	C 3 4		CEKA010M50
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 13 14 81 82		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 42 46 79 80		CEA100M16L2
	C 38 39	2200μF/25V	CCH1027
	C 40 47 49 50	470μF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 43 45 52		CEA101M10L2
	C 48	220μF/10V	CH1036
	C 51		CEA4R7M25L2
	C 54		CKPYB102K50L
	C 56 57 89		CQMA104K50
	C 58 59 60 61	100μF/10V	CCH1053
	C 62 63	1500μF/16V	CCH1021
	C 66 67	2200μF/25V	CCH1022
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78 87		CQMA103K50
	C 83		CEA220M16L2
	C 85 86	22μF/10V	CCH1035
	C 88		CEA100M16L2

1 2 3 4 5 6

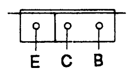
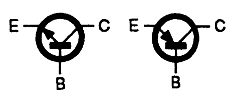
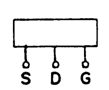
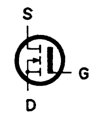
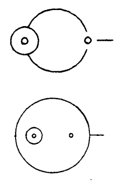
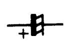
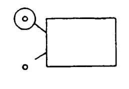
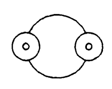
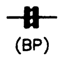
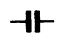
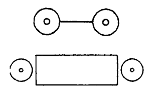
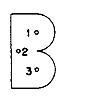
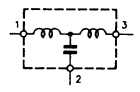
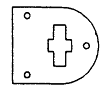
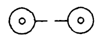
CONNECTION DIAGRAM (GM-2000A/EW)

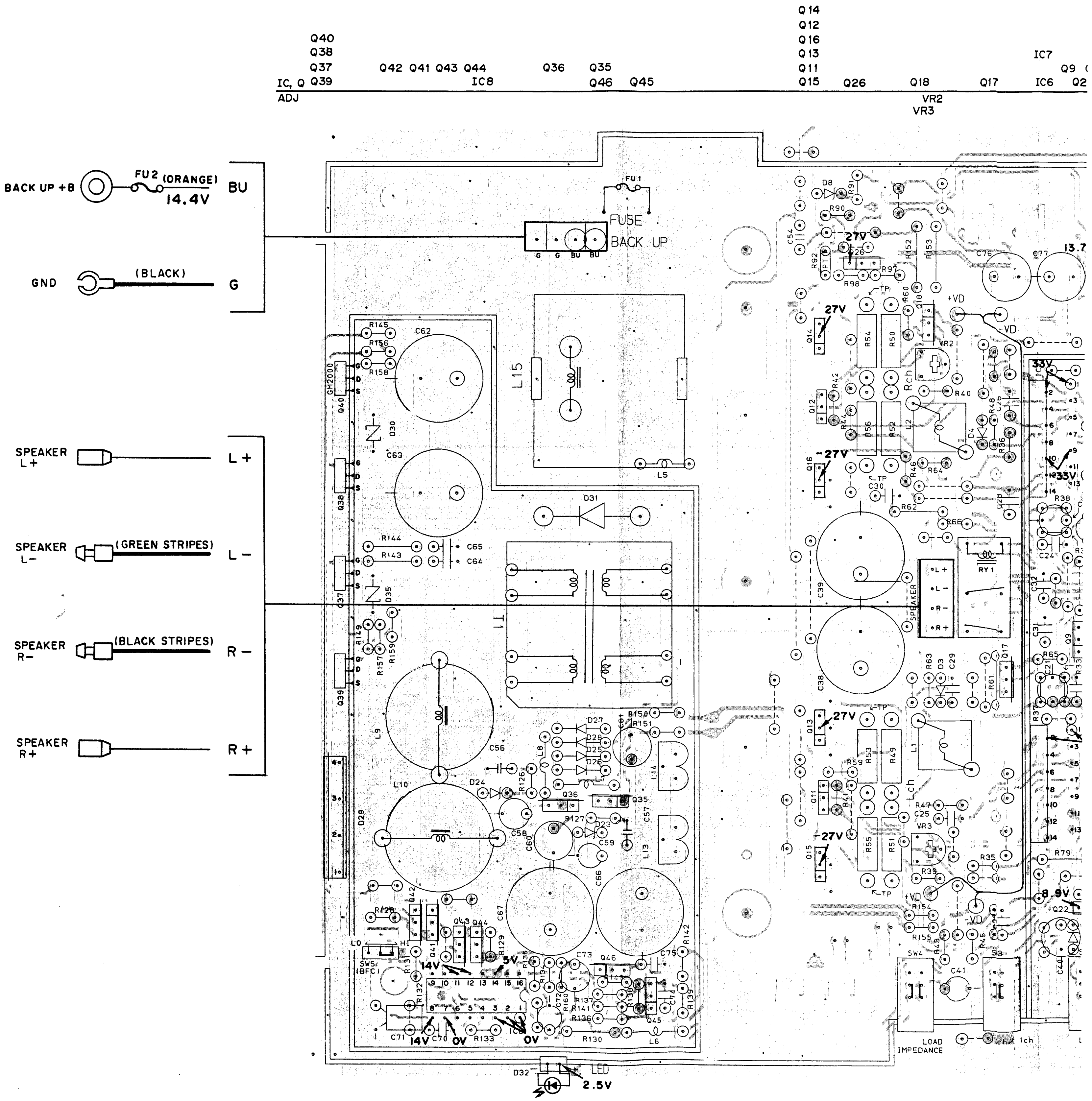
A

B

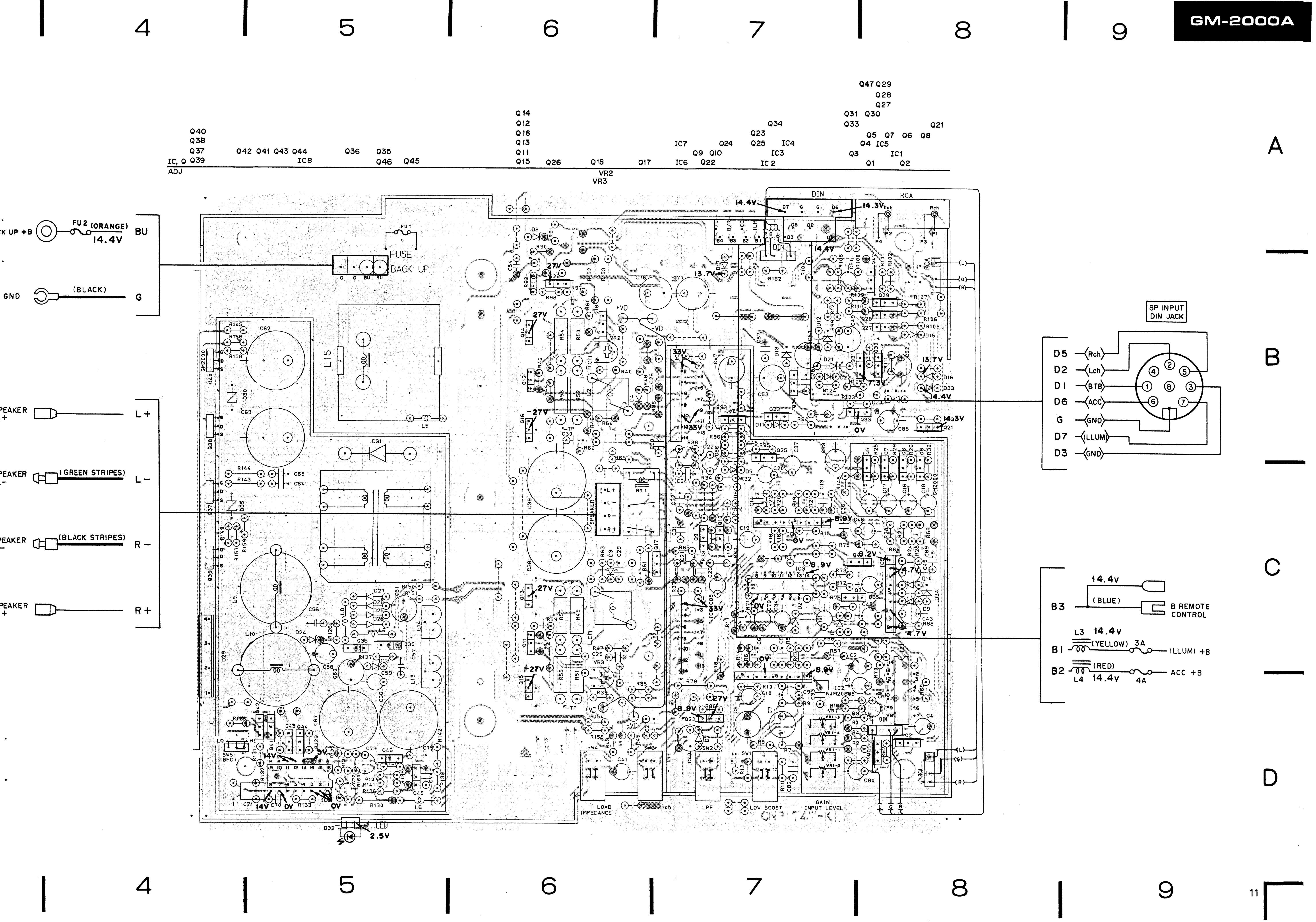
C

D

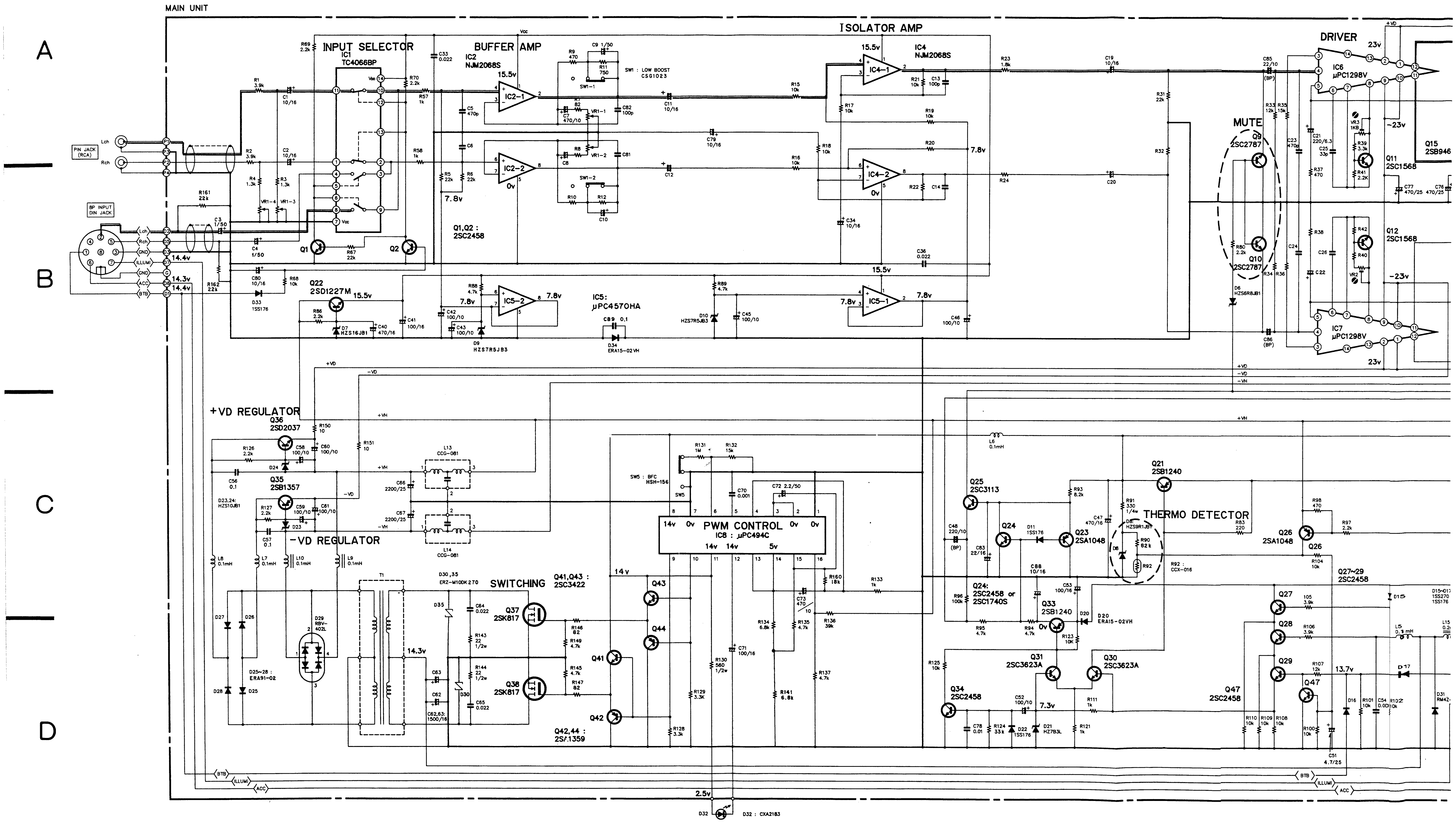
Pattern symbol	Schematic symbol	Representation	Remarks
 E C B		Transistor	Transistor E comes in square ◻, then to left C and B follow unless otherwise indicated.
 S D G		FET	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	

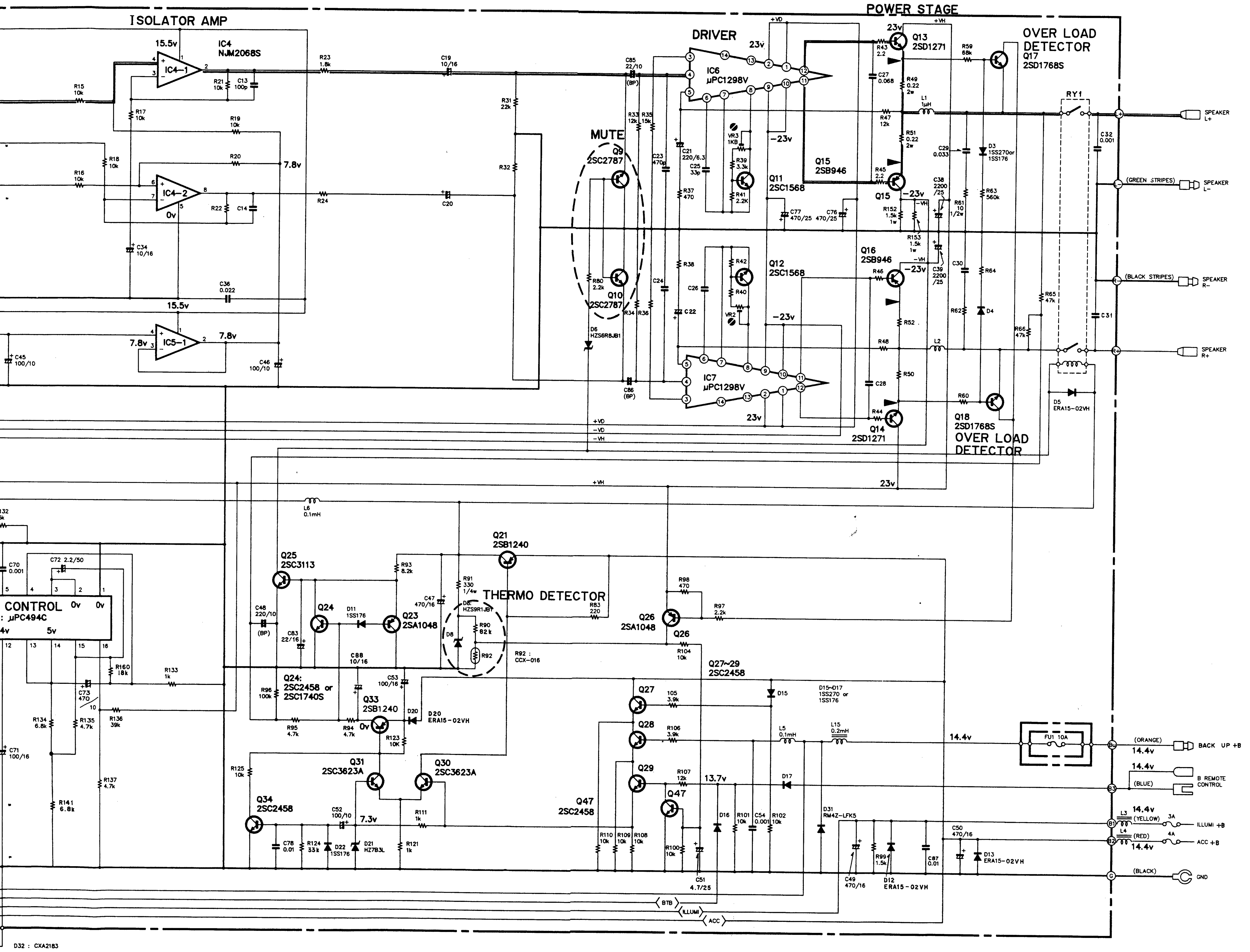

IC, Q
ADJ
Q40
Q38
Q37
Q39
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q46
Q45
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9
Q2
BACK UP +B
FU2 (ORANGE)
14.4V
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1
FUSE
BACK UP
L15
L5
D31
T1
L9
L10
D29
RY1
SPEAKER
27V
−27V
33V
8.9V
13.7
14V
5V
0V
LOAD IMPEDANCE
LED
D32
2.5V

1 2 3 4 5 6


4
5
6
7
8
9
A
B
C
D
IC, Q ADJ
Q40 Q38 Q37 Q39
Q42 Q41 Q43 Q44 IC8
Q36
Q35 Q46 Q45
Q14 Q12 Q16 Q13 Q11 Q15
Q26
Q18 VR2 VR3
Q17
IC7 IC6
Q9 Q10 Q22
Q24
Q23 Q25 IC2
Q34 IC4 IC3
Q47 Q29 Q28 Q27 Q31 Q30 Q33
Q5 Q7 Q6 Q8 Q4 IC5 Q3 IC1 Q1 Q2
Q21
K UP +B
FU2 (ORANGE)
14.4V
BU
GND
(BLACK)
G
PEAKER +
L +
PEAKER -
(GREEN STRIPES)
L −
PEAKER -
(BLACK STRIPES)
R −
PEAKER +
R +
FUSE
BACK UP
FU1
L15
L5
D31
T1
L9
L10
D29
SPEAKER
RY1
DIN
RCA
14.4V
14.3V
13.7V
27V
-27V
33V
8.9V
8.2V
7.3V
4.7V
0V
3V
14V
2.5V
LED
D32
SW5 (BFC)
SW4
LOAD IMPEDANCE
SW3
2ch/1ch
SW2
LPF
SW1
LOW BOOST
GAIN INPUT LEVEL
NJM2068S
GM2000
8P INPUT DIN JACK
D5 (Rch)
D2 (Lch)
D1 (BTB)
D6 (ACC)
G (GND)
D7 (ILLUMI)
D3 (GND)
B3
14.4V
(BLUE)
B REMOTE CONTROL
L3 14.4V
B1
(YELLOW) 3A
ILLUMI +B
B2
(RED)
L4 14.4V
4A
ACC +B

SCHEMATIC CIRCUIT DIAGRAM (GM-1000A/EW)


1
2
3
4
5
6
A
B
C
D
MAIN UNIT
PIN JACK (RCA)
Lch
Rch
BP INPUT DIN JACK
INPUT SELECTOR
IC1 TC4066BP
BUFFER AMP
IC2 NJM2068S
IC2-1
IC2-2
SW1 : LOW BOOST CSG1023
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
Q1,Q2 : 2SC2458
Q22 2SD1227M
IC5: µPC4570HA
IC5-1
IC5-2
DRIVER
IC6 µPC1298V
IC7 µPC1298V
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q15 2SB946
15.5v
7.8v
0v
23v
-23v
14.4v
14.3v
+VD REGULATOR
Q36 2SD2037
Q35 2SB1357
-VD REGULATOR
D23,24: HZS10JB1
L13 CCG-081
L14 CCG-081
D25~28 : ERA91-02
D29 RBV-402L
T1
D30,35 ERZ-M10DK270
SWITCHING
Q37 2SK817
Q38 2SK817
Q41,Q43 : 2SC3422
Q42,44 : 2SA1359
SW5 : BFC HSH-156
PWM CONTROL
IC8 : µPC494C
14v
5v
2.5v
D32 : CXA2183
THERMO DETECTOR
Q21 2SB1240
Q25 2SC3113
Q23 2SA1048
Q24: 2SC2458 or 2SC1740S
Q33 2SB1240
D20 ERA15-02VH
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458
D21 HZ7B3L
D22 1SS176
R92 : CCX-016
Q26 2SA1048
Q27~29 2SC2458
Q47 2SC2458
D15~017 1SS270 1SS176
13.7v
7.3v
BTB
ILLUMI
ACC
+VD
-VD
+VH
-VH


ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
15.5v
7.8v
0v
DRIVER
IC6 µPC1298V
IC7 µPC1298V
POWER STAGE
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q13 2SD1271
Q14 2SD1271
Q15 2SB946
Q16 2SB946
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
RY1
SPEAKER L+
SPEAKER L−
SPEAKER R−
SPEAKER R+
(GREEN STRIPES)
(BLACK STRIPES)
23v
−23v
+VD
−VD
−VH
+VH
CONTROL
µPC494C
THERMO DETECTOR
Q21 2SB1240
Q23 2SA1048
Q24
Q24: 2SC2458 or 2SC1740S
Q25 2SC3113
Q26 2SA1048
Q27~29 2SC2458
Q30 2SC3623A
Q31 2SC3623A
Q33 2SB1240
Q34 2SC2458
Q47 2SC2458
D15~D17 1SS270 or 1SS176
D20 ERA15-02VH
D21 HZ7B3L
D31 RM4Z-LFK5
D12 ERA15-02VH
D13 ERA15-02VH
D5 ERA15-02VH
D6 HZS6R8JB1
R92 : CCX-016
FU1 10A
14.4v
13.7v
7.3v
(ORANGE)
BACK UP +B
B REMOTE CONTROL
(BLUE)
(YELLOW)
ILLUMI +B
(RED)
ACC +B
(BLACK)
GND
BTB
ILLUMI
ACC
D32 : CXA2183

SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF

SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch positon.

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 41 42 69 70 76 77 97 126 127 137		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 47 48		RD1/4PS183JL
	R 49 50 51 52 53 54 55 56	0.22Ω/2W	CCN1013
	R 57 58 111 121		RD1/4PS102JL
	R 59 60		RD1/4PS393JL
	R 61 62		RS1/2P100JL
	R 63 64		RD1/4PS564JL
	R 65 66 75		RD1/4PS473JL
	R 78 100 101 102 104 108		RD1/4PS103JL
	R 79		RD1/4PM102J
	R 80		RD1/4PS222JL
	R 83		RD1/4PS221JL
	R 86 135 145 149		RD1/4PS472JL
	R 88 89 133		RD1/4PS102JL
	R 90		RD1/4PS823JL
	R 91		RD1/4PS331JL
	R 92	Thermister	CCX-016
	R 93		RD1/4PS822JL
	R 94		RD1/4PS223JL
	R 95		RD1/4PS472JL
	R 99		RD1/4PS152JL
	R 107		RD1/4PS123JL
	R 109 110 123 125 139 142		RD1/4PS103JL
	R 124		RD1/4PS333JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 138		RD1/4PS561JL
	R 140		RD1/4PS242JL
	R 141		RD1/4PS432JL
	R 143 144		RS1/2P220JL
	R 148		RD1/4PS681JL
	R 150 151		RD1/4PS330JL
	R 152 153		RS1P152JL
	R 154 155		RD1/4PS220JL
	R 156 157 158 159		RD1/4PS820JL
	R 160		RD1/4PS183JL
	R 161 162		RD1/4PS223JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2 19 20		CEKA100M16
	C 3 4		CEKA010M50
	C 5 6 23 24		CKCYB471K50
	C 7 8 40		CEA471M10L2
	C 9 10 15 16 17 18		CEA010M50L2
	C 11 12	10μF/16V	CCH1034
	C 13 14 81 82		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 29 30		CQMA333K50
	C 31 32 74 75		CQMA102K50
	C 33 36		CQMA223K50
	C 34 42 46 79 80		CEA100M16L2
	C 35		CEA4R7M25L2
	C 37		CEA220M16L2
	C 38 39	2200μF/35V	CCH1028
	C 41 43 45 52		CEA101M10L2
	C 47 49 50	470μF/16V	CCH-114
	C 48	220μF/10V	CCH1036
	C 51		CEA4R7M25L2
	C 53		CEA101M16L2
	C 54		CKPYB102K50L
	C 56 57 89		CQMA104K50
	C 58 59 60 61	100μF/10V	CCH1053
	C 62 63	3300μF/16V	CCH1023
	C 64 65		CQMA223K50
	C 66 67	2200μF/35V	CCH1024
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M35L2
	C 78 87		CQMA103K50
	C 83		CEA220M16L2
	C 85 86		CCH1035
	C 88		CEA100M16L2

Model Number : GM-1000A/EW

Unit Number :
Unit Name :Main Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1		TC4066BP
**	IC 2 4		NJM2068S
**	IC 5		μPC4570HA
**	IC 6 7		μPC1298V
**	IC 8		μPC494C
**	Q 1 2 24 27 28 29 34 47		2SC2458
**	Q 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1271
**	Q 15 16		2SB946
**	Q 17 18		2SD1768S
**	Q 21		2SB1240
**	Q 22		2SD1227M
**	Q 23 26		2SA1048
**	Q 25		2SC3113
**	Q 30 31		2SC3623A
**	Q 33		2SB1240
**	Q 35		2SB1357
**	Q 36		2SD2037
**	Q 37 38		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 3 4 11 15 16 17 22 33		1SS176
*	D 5 12 13 34		ERA15-02VH
*	D 6		HZS7A1L
*	D 7		HZS16JB1
*	D 8		HZS9R1JB1
*	D 9 10		HZS7R5JB3
*	D 20		ERA15-02VH
*	D 21		HZ7B3L
*	D 23 24		HZS10JB1
*	D 25 26 27 28		ERA91-02
*	D 29		RBV-402L
*	D 30 35	Surge Absorber	ERZ-M10DK270
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100μH	CTF-113
	L 9 10	Choke Coil	CTH1034
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1033
	T 1	Transformer	CTT1010
**	SW 1	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume	CCS1095
**	VR 2 3	Semi-fixed 1.5kΩ (B)	VRTB6VS152
	RY 1	Relay	CSR1010
**	FU 1	Fuse 10A	CEK1136

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2 105 106		RD1/4PS392JL
	R 3 4		RD1/4PS132JL
	R 5 6		RD1/4PS104JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 15 16 17 18 19 20 21 22		RD1/4PS103JL
	R 23 24		RD1/4PS182JL
	R 31 32 67		RD1/4PS223JL
	R 33 34 47 48		RD1/4PS123JL
	R 35 36		RD1/4PS153JL
	R 39 40 128 129		RD1/4PS332JL
	R 41 42 69 70 80 86 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 57 58 111 121 133		RD1/4PS102JL
	R 59 60		RD1/4PS683JL
	R 61 62		RD1/4PM100J
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 68 100 101 102 104 108		RD1/4PS103JL
	R 83		RD1/4PS221JL
	R 88 89 95 135 137 145 149		RD1/4PS472JL
	R 90		RD1/4PS823JL
	R 91		RD1/4PS331JL
	R 92	Thermister	CCX-016
	R 93		RD1/4PS822JL
	R 94		RD1/4PS223JL
	R 96		RD1/4PS104JL
	R 99		RD1/4PS152JL
	R 107		RD1/4PS123JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS333JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134 141		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 146 147		RD1/4PS820JL
	R 150 151		RD1/4PS100JL
	R 152 153		RS1P152JL
	R 160		RD1/4PS183JL
	R 161 162		RD1/4PS223JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2 11 12 19 20		CEKA100M16
	C 3 4		CEKA010M50
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2

No.
A333K50
A102K50
A223K50
00M16L2
R7M25L2
20M16L2
028
01M10L2
-114
036
R7M25L2
01M16L2
B102K50L
A104K50
053
023
A223K50
024
A102J2A
H101M16
H2R2M50
Q471M10
71M35L2
A103K50
20M16L2
035
00M16L2

Model Number : GM-1000A/EW

Unit Number :
Unit Name :Main Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1		TC4066BP
**	IC 2 4		NJM2068S
**	IC 5		μPC4570HA
**	IC 6 7		μPC1298V
**	IC 8		μPC494C
**	Q 1 2 24 27 28 29 34 47		2SC2458
**	Q 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1271
**	Q 15 16		2SB946
**	Q 17 18		2SD1768S
**	Q 21		2SB1240
**	Q 22		2SD1227M
**	Q 23 26		2SA1048
**	Q 25		2SC3113
**	Q 30 31		2SC3623A
**	Q 33		2SB1240
**	Q 35		2SB1357
**	Q 36		2SD2037
**	Q 37 38		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 3 4 11 15 16 17 22 33		1SS176
*	D 5 12 13 34		ERA15-02VH
*	D 6		HZS7A1L
*	D 7		HZS16JB1
*	D 8		HZS9R1JB1
*	D 9 10		HZS7R5JB3
*	D 20		ERA15-02VH
*	D 21		HZ7B3L
*	D 23 24		HZS10JB1
*	D 25 26 27 28		ERA91-02
*	D 29		RBV-402L
*	D 30 35	Surge Absorber	ERZ-M10DK270
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100μH	CTF-113
	L 9 10	Choke Coil	CTH1034
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1033
	T 1	Transformer	CTT1010
**	SW 1	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume	CCS1095
**	VR 2 3	Semi-fixed 1.5kΩ (B)	VRTB6VS152
	RY 1	Relay	CSR1010
**	FU 1	Fuse 10A	CEK1136

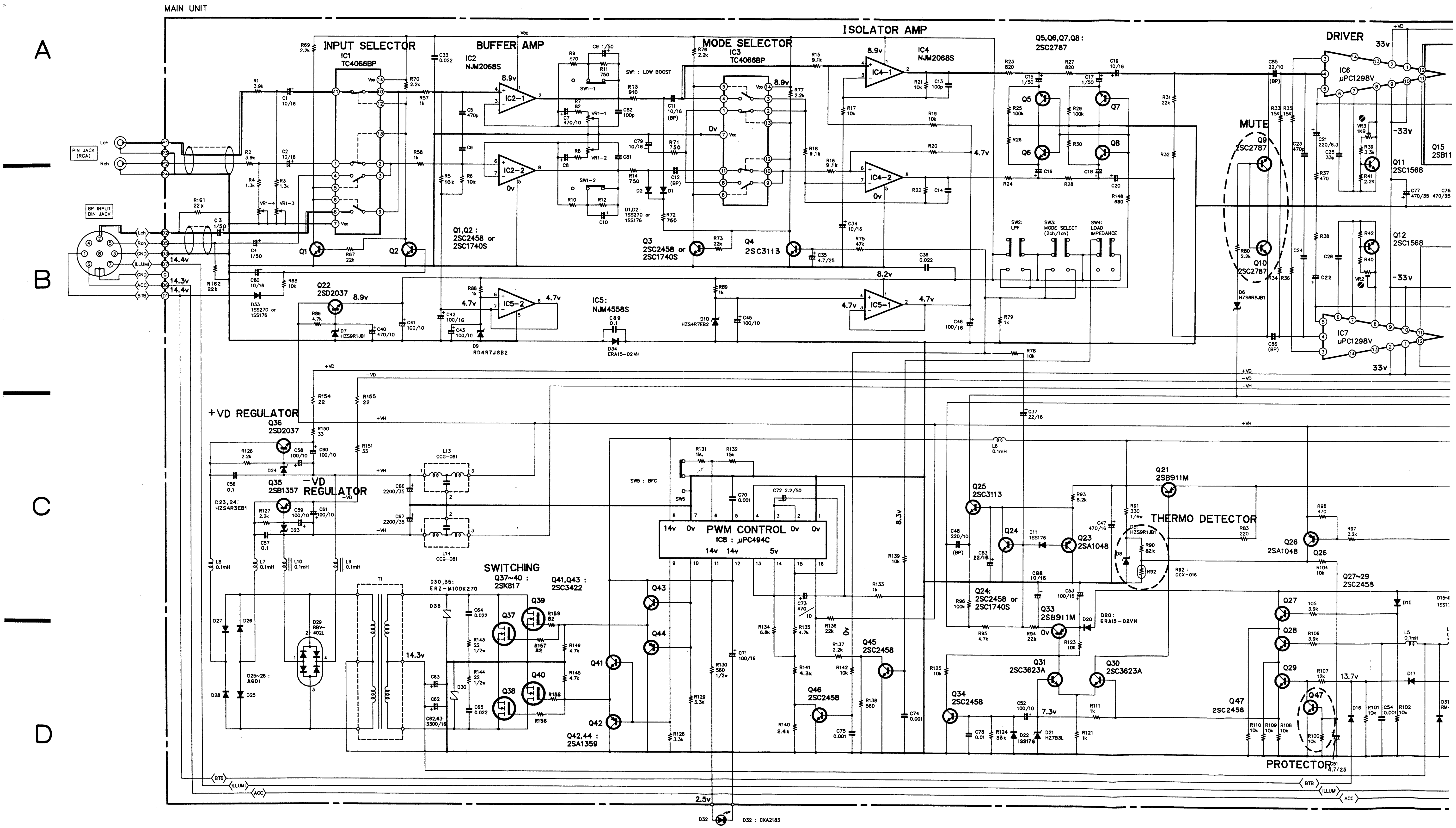
RESISTORS

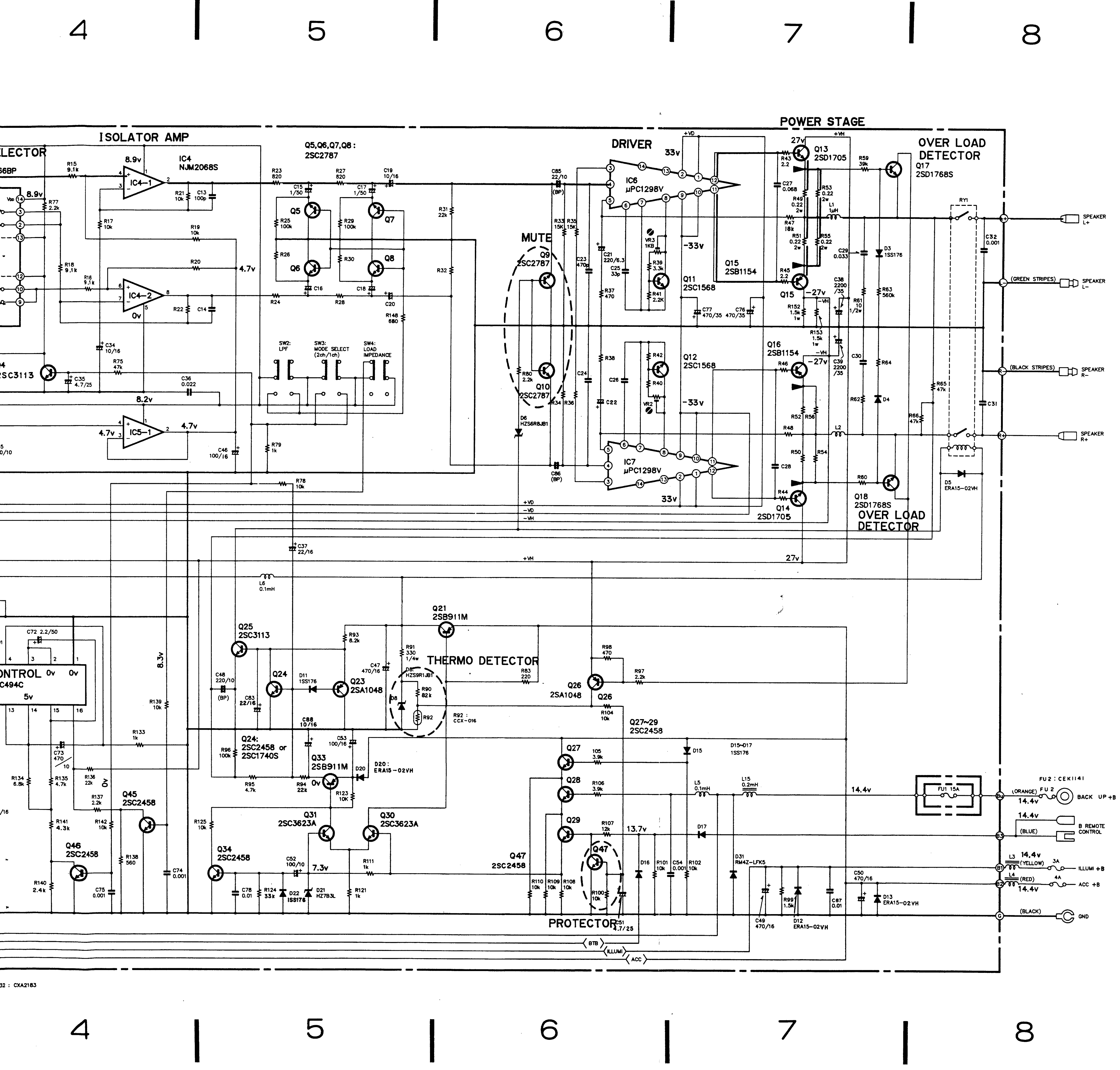
Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2 105 106		RD1/4PS392JL
	R 3 4		RD1/4PS132JL
	R 5 6		RD1/4PS104JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 15 16 17 18 19 20 21 22		RD1/4PS103JL
	R 23 24		RD1/4PS182JL
	R 31 32 67		RD1/4PS223JL
	R 33 34 47 48		RD1/4PS123JL
	R 35 36		RD1/4PS153JL
	R 39 40 128 129		RD1/4PS332JL
	R 41 42 69 70 80 86 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 57 58 111 121 133		RD1/4PS102JL
	R 59 60		RD1/4PS683JL
	R 61 62		RD1/4PM100J
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 68 100 101 102 104 108		RD1/4PS103JL
	R 83		RD1/4PS221JL
	R 88 89 95 135 137 145 149		RD1/4PS472JL
	R 90		RD1/4PS823JL
	R 91		RD1/4PS331JL
	R 92	Thermister	CCX-016
	R 93		RD1/4PS822JL
	R 94		RD1/4PS223JL
	R 96		RD1/4PS104JL
	R 99		RD1/4PS152JL
	R 107		RD1/4PS123JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS333JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134 141		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 146 147		RD1/4PS820JL
	R 150 151		RD1/4PS100JL
	R 152 153		RS1P152JL
	R 160		RD1/4PS183JL
	R 161 162		RD1/4PS223JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2 11 12 19 20		CEKA100M16
	C 3 4		CEKA010M50
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2
	C 13 14 81 82		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 42 46 79 80		CEA100M16L2
	C 38 39	2200μF/25V	CCH1027
	C 40 47 49 50	470μF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 43 45 52		CEA101M10L2
	C 48	220μF/10V	CH1036
	C 51		CEA4R7M25L2
	C 54		CKPYB102K50L
	C 56 57 89		CQMA104K50
	C 58 59 60 61	100μF/10V	CCH1053
	C 62 63	1500μF/16V	CCH1021
	C 66 67	2200μF/25V	CCH1022
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78 87		CQMA103K50
	C 83		CEA220M16L2
	C 85 86	22μF/10V	CCH1035
	C 88		CEA100M16L2

SCHEMATIC CIRCUIT DIAGRAM (GM-2000A/EW)


MAIN UNIT
A
B
C
D
PIN JACK (RCA)
Lch
Rch
8P INPUT DIN JACK
INPUT SELECTOR
IC1 TC4066BP
BUFFER AMP
IC2 NJM2068S
IC2-1
IC2-2
SW1 : LOW BOOST
MODE SELECTOR
IC3 TC4066BP
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
Q5,Q6,Q7,Q8 : 2SC2787
DRIVER
IC6 µPC1298V
IC7 µPC1298V
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q15 2SB11
Q1,Q2 : 2SC2458 or 2SC1740S
Q3 2SC2458 or 2SC1740S
Q4 2SC3113
Q22 2SD2037
IC5 : NJM4558S
IC5-1
IC5-2
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
+VD REGULATOR
Q36 2SD2037
Q35 2SB1357
-VD REGULATOR
D23,24: HZS4R3EB1
D29 RBV-402L
D25~28 : AG01
L13 CCG-081
L14 CCG-081
SWITCHING
Q37~40 : 2SK817
Q41,Q43 : 2SC3422
Q42,44 : 2SA1359
D30,35: ERZ-M10DK270
PWM CONTROL
IC8 : µPC494C
SW5 : BFC
Q45 2SC2458
Q46 2SC2458
Q25 2SC3113
Q21 2SB911M
Q23 2SA1048
Q24: 2SC2458 or 2SC1740S
Q33 2SB911M
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458
THERMO DETECTOR
R92 : CCX-016
D20 : ERA15-02VH
D21 HZ7B3L
Q26 2SA1048
Q27~29 2SC2458
Q47 2SC2458
PROTECTOR
D32 : CXA2183
8.9v
4.7v
8.2v
14.4v
14.3v
14.3v
13.7v
7.3v
2.5v
8.3v
33v
-33v
+VD
-VD
+VH
-VH
BTB
ILLUMI
ACC
GND


4
5
6
7
8
9
ISOLATOR AMP
LECTOR
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
8.9v
4.7v
8.2v
0v
Q5,Q6,Q7,Q8 : 2SC2787
Q5
Q6
Q7
Q8
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
2SC3113
DRIVER
IC6 µPC1298V
IC7 µPC1298V
33v
-33v
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
Q11 2SC1568
Q12 2SC1568
POWER STAGE
+VD
+VH
-VH
27v
-27v
Q13 2SD1705
Q14 2SD1705
Q15 2SB1154
Q16 2SB1154
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
D3 1SS176
D5 ERA15-02VH
RY1
SPEAKER L+
(GREEN STRIPES) SPEAKER L-
(BLACK STRIPES) SPEAKER R-
SPEAKER R+
CONTROL
C494C
5v
8.3v
L6 0.1mH
Q25 2SC3113
Q24
Q24: 2SC2458 or 2SC1740S
D11 1SS176
Q23 2SA1048
Q21 2SB911M
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX-016
Q26 2SA1048
Q27~29 2SC2458
Q27
Q28
Q29
D15~D17 1SS176
D20: ERA15-02VH
Q33 2SB911M
Q31 2SC3623A
Q30 2SC3623A
Q45 2SC2458
Q46 2SC2458
Q34 2SC2458
Q47 2SC2458
D21 HZ7B3L
D22 1SS176
7.3v
13.7v
14.4v
PROTECTOR
D31 RM4Z-LFK5
D12 ERA15-02VH
D13 ERA15-02VH
FU1 15A
FU2 : CEK1141
(ORANGE) BACK UP +B
(BLUE) B REMOTE CONTROL
(YELLOW) 3A ILLUMI +B
(RED) 4A ACC +B
(BLACK) GND
BTB
ILLUMI
ACC
32 : CXA2183

A

B

C

D

SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF

SW2: LPF SWITCH .... ON-OFF

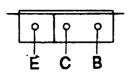
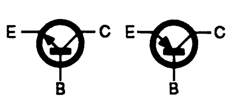
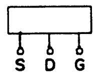
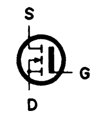
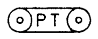
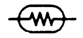
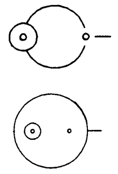
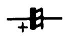
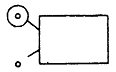
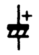
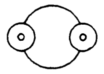
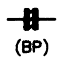
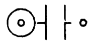
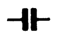
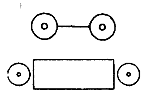
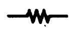
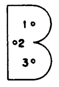
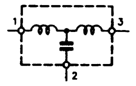
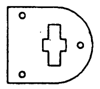
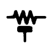
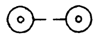
SW3: MODE SELECT SWITCH 1ch-2ch

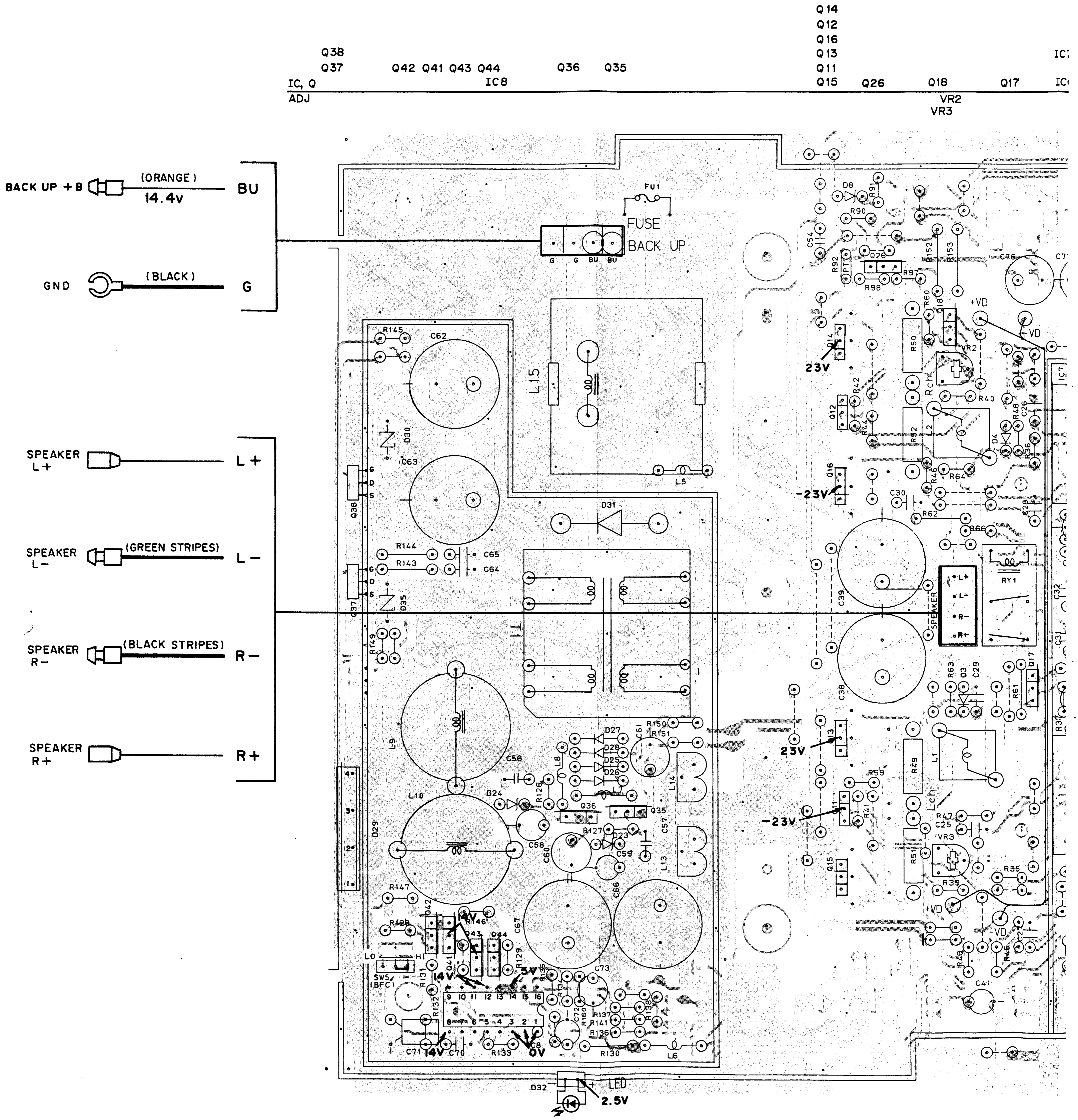
SW4: LOAD IMPEDANCE SWITCH 2Ω-4Ω

SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch position.

CONNECTION DIAGRAM (GM-1000A/EW)

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡ , then to left C and B follow unless otherwise indicated.
		FET	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	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Q13
Q11
Q15
Q38
Q37
Q42 Q41 Q43 Q44
IC8
Q36 Q35
Q26
Q18
Q17
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VR2
VR3
BACK UP +B
(ORANGE)
14.4V
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(BLACK)
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SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
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FUSE
BACK UP
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L5
D31
L1
C62
C63
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R145
R144
R143
C65
C64
D35
R149
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C56
D24
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D25
D26
C61
R150
R151
L8
L14
Q36
Q35
C57
L13
R127
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C58
C59
C60
C66
C67
C73
R147
R146
R128
R129
R131
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R130
R138
R137
R141
R136
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C71
C72
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0V
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D8
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R90
R92
Q26
R97
R98
R52
R153
C76
R60
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R50
VR2
Rch
R40
R42
23V
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R52
D4
R46
R64
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SPEAKER
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R−
R+
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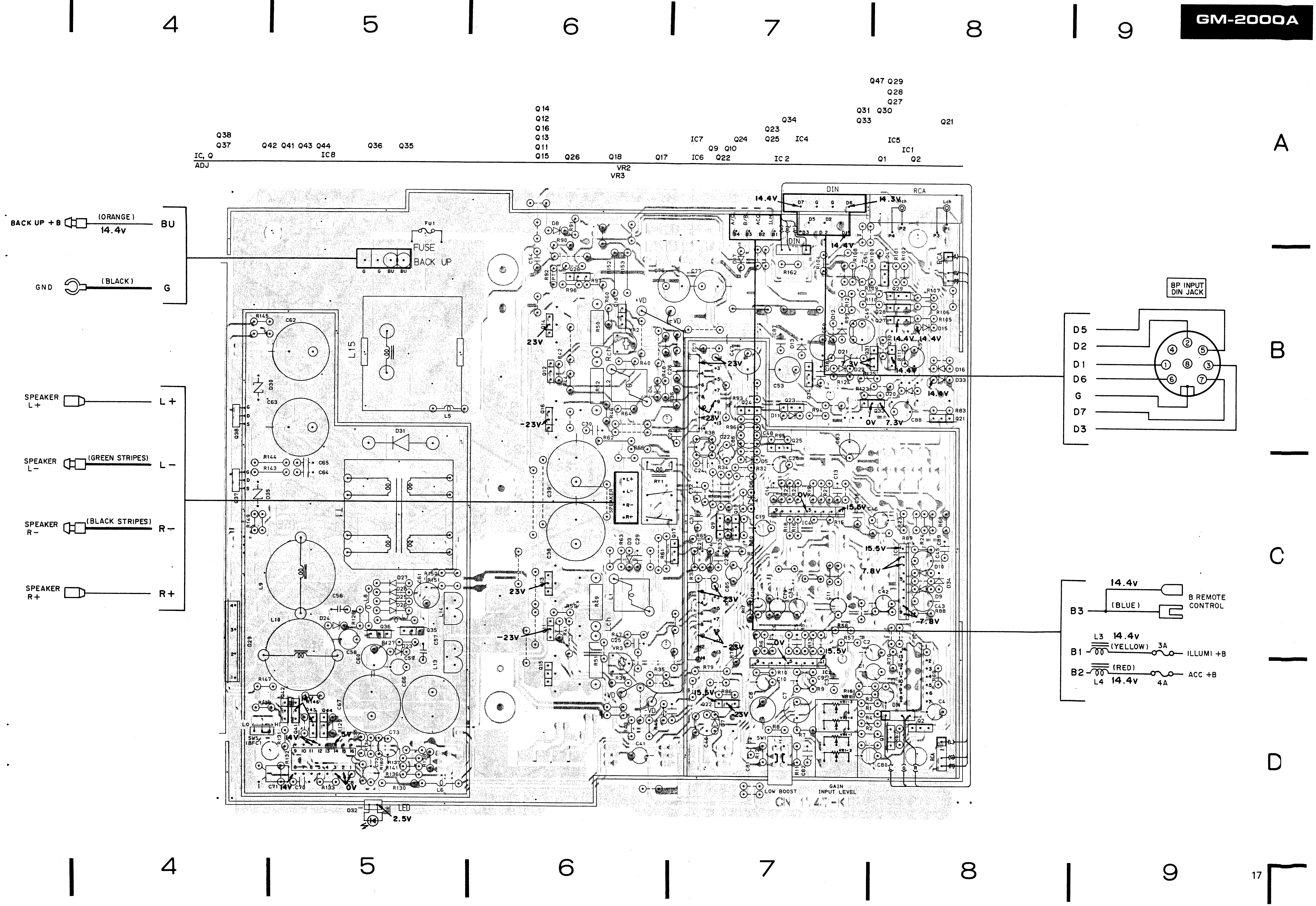
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Q21
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(ORANGE)
14.4V
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GND
(BLACK)
G
FU1
FUSE
BACK UP
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
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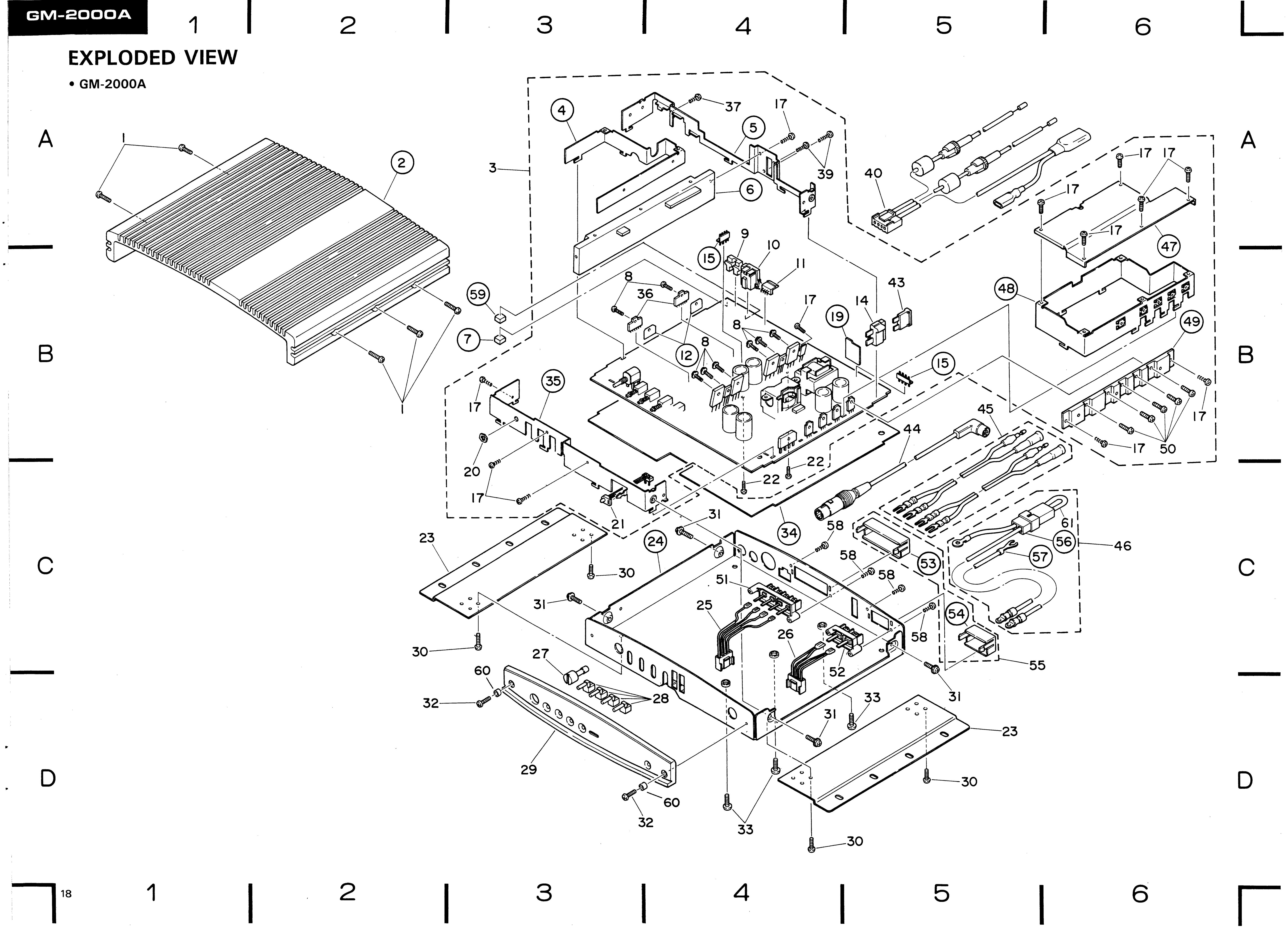
T1
L9
L10
D31
D30
C62
C63
C56
RY1
SPEAKER
DIN
RCA
Rch
Lch
14.4V
14.3V
23V
−23V
15.5V
15.6V
7.8V
−7.8V
0V
7.3V
3V
14V
5V
2.5V
LED
D32
SW1
LOW BOOST
GAIN
INPUT LEVEL
SW5 (BFC)
BP INPUT
DIN JACK
D5
D2
D1
D6
G
D7
D3
B3
14.4V
(BLUE)
B REMOTE CONTROL
L3
14.4V
(YELLOW)
3A
B1
ILLUMI +B
B2
(RED)
L4
14.4V
4A
ACC +B
GN 1147-K

EXPLODED VIEW

- GM-2000A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NOTE:

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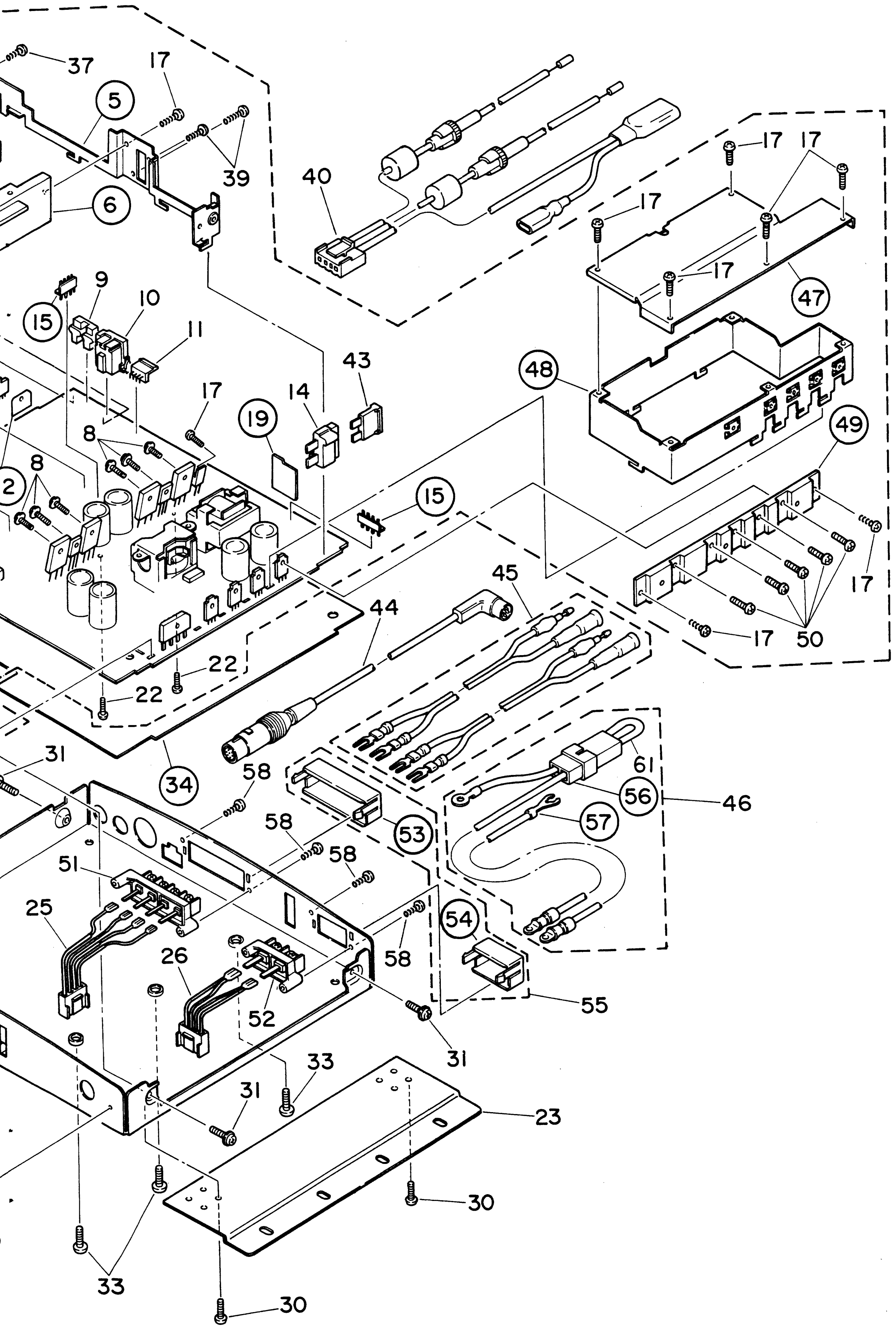


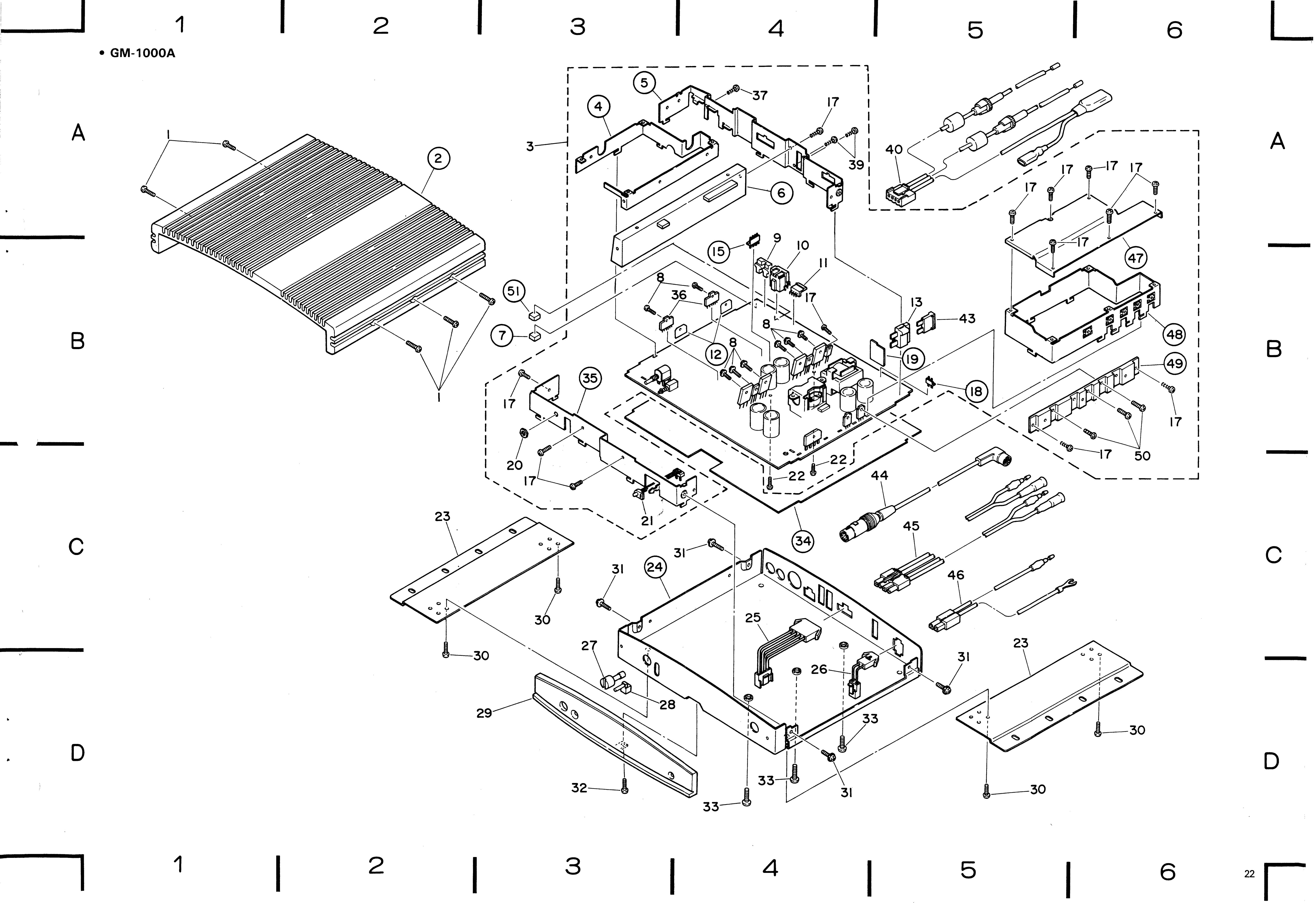
NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

● Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	AMZ30P080FZK	Screw		31	BMZ30P050FMC	Screw
	2		Heat Sink Assy		32	BMZ30P080FZK	Screw
◉	3	CWM2161	Main Unit		33	PMZ40P080FMC	Screw
	4		Shield		34		Insulator
	5		Bracket		35		Bracket
	6		Heat Sink	★★	36	μPC1298V	IC
	7		Cushion		37	BMZ20P080FMC	Screw
	8	PMF30P100FMC	Screw		38	•••••	•••••
	9	CKS1602	Pin Jack		39	PTZ20P080FMC	Screw
	10	CKS1156	Connector		40	CDE2463	Cord Assy
	11	CKS1340	Connector(4P)		41	•••••	•••••
	12		Rubber		42	•••••	•••••
	13	•••••	•••••	★★	43	CEK1137	Fuse(15A)
	14	CKR1001	Fuse Holder		44	CDE2620	DIN Connector
	15		Plug(4P)		45	CDE2018	Cord
	16	•••••	•••••		46	CDE1997	Cord Assy
	17	BMZ30P050FMC	Screw		47		Shield
	18	•••••	••••••		48		Shield
	19		P.C. Board		49		Heat Sink
	20	CBN-032	Nut		50	BMZ26P080FMC	Screw
★	21	CXA2183	LED Assy		51	CKE1004	4P Terminal
	22	BMZ30P060FMC	Screw		52	CKE1007	2P Terminal
	23	CNC2099	Bracket		53		Cover
	24		Case		54		Cover
	25	CDE2028	Cord(4P)		55	CEA1345	Cover Assy
★	26	CDE2030	Cord(4P)		56		Cord
★	27	CAA1135	Knob		57		Cord
★	28	CAC1701	Button		58	BTZ30P080FZK	Screw
	29	CXA2415	Grille Assy		59		Cushion
	30	BMZ50P060FZK	Screw		60	CNC2375	Collar
				★★	61	CEK1141	Fusible Link

• GM-1000A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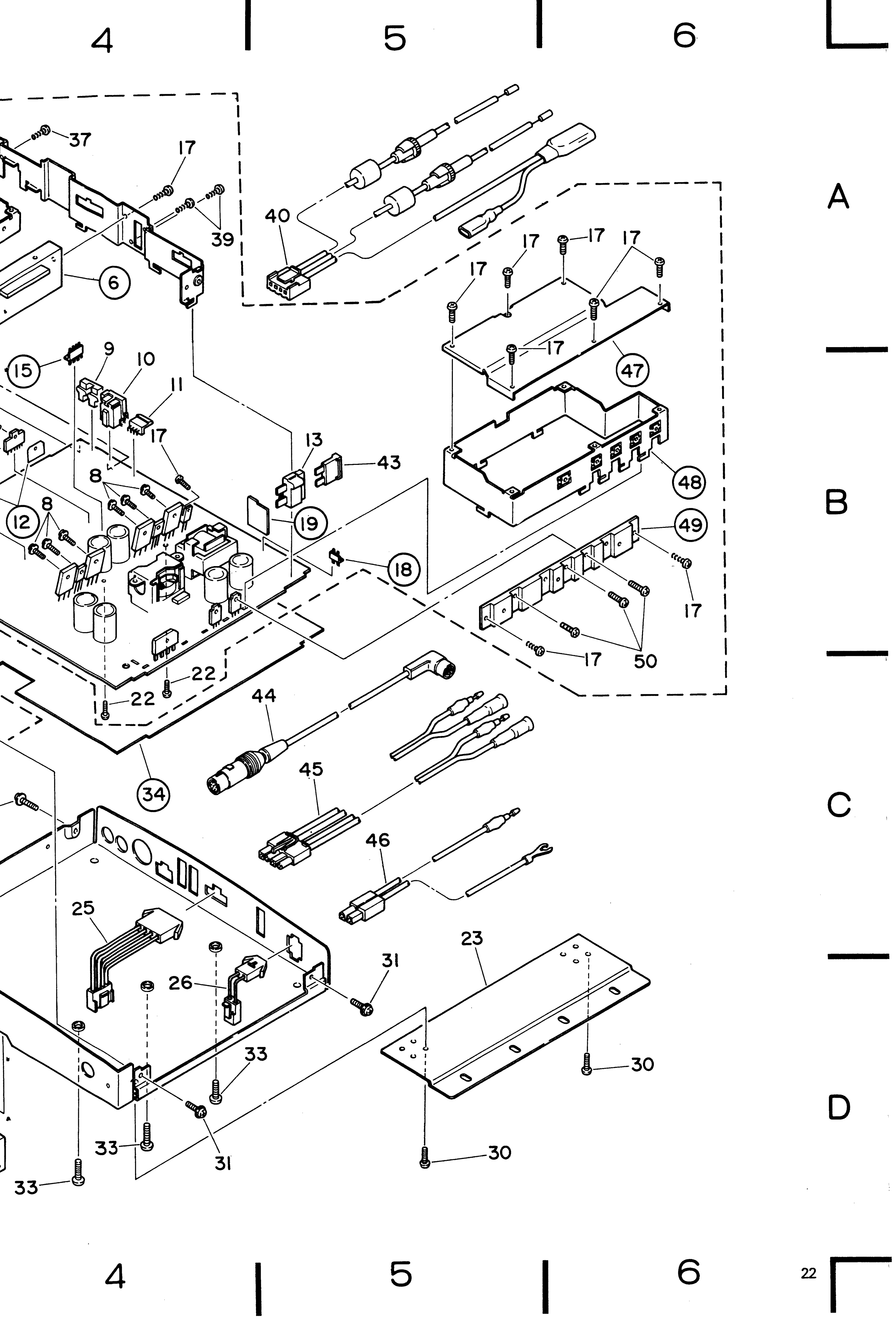
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● Parts List

Mark	No.	Part No.	Description
	1	AMZ30P120FZK	Screw
	2		Heat Sink Assy
◉	3	CWM2160	Main Unit
	4		Shield
	5		Bracket
	6		Heat Sink
	7		Cushion
	8	PMF30P080FMC	Screw
	9	CKS1602	Pin Jack
	10	CKS1156	Connector
	11	CKS1340	Connector(4P)
	12		Rubber
	13	CKR1001	Fuse Holder
	14	•••••	•••••
	15		Plug(4P)
	16	•••••	•••••
	17	BMZ30P050FMC	Screw
	18		Plug(2P)
	19		P. C. Board
	20	CBN-032	Nut
★	21	CXA2183	LED Assy
	22	BMZ30P060FMC	Screw
	23	CNC2099	Bracket
	24		Case
	25	CDE1839	Cord(4P)
★	26	CDE1885	Cord(4P)
★	27	CAA1135	Knob
★	28	CAC1701	Button
	29	CXA2417	Grille Assy
	30	BMZ50P060FZK	Screw
	31	BMZ30P050FMC	Screw
	32	PMS30P060FZK	Screw
	33	PMZ40P080FMC	Screw
	34		Insulator
	35		Bracket
★★	36	μPC1298V	IC
	37	BMZ20P080FMC	Screw
	38	•••••	•••••
	39	PTZ20P080FMC	Screw
	40	CDE2467	Coad Assy
	41	•••••	•••••
	42	•••••	•••••
★★	43	CEK1136	Fuse(10A)
	44	CDE2621	DIN Connector
	45	CDE2151	Cord
★	46	CDE1840	Cord Assy
	47		Shield
	48		Shield
	49		Heat Sink
	50	BMZ26P080FMC	Screw
	51		Cushion

PACKING METHOD

- **Parts List (Page 57)**

GM-2000/EW				GM-2000A/EW	
Mark	No.	Part No.	Description	Part No.	Description
	1	CHG1467	Carton	CHG1721	Carton
	2	CRD1201	Owner's Manual	CRD1334	Owner's Manual
	5	CEA1338	Accessory Assy	CEA1507	Accessory Assy
	5-1	CDE2105	Cord	CDE2463	Cord Assy
	5-4	CDE1846	DIN Connector	CDE2620	DIN Connector
	5-5-2	BTZ50P160FZK	Screw(×8)	BYC50P160FZK	Screw(×8)

GM-1000/EW				GM-1000A/EW	
Mark	No.	Part No.	Description	Part No.	Description
	1	CHG1464	Carton	CHG1711	Carton
	2	CRD1198	Owner's Manual	CRD1333	Owner's Manual
	5	CEA1340	Accessory Assy	CEA1506	Accessory Assy
	5-1	CDE2109	Cord	CDE2467	Cord Assy
	5-3	CDE1836	Cord	CDE2151	Cord
	5-4	CDE1847	DIN Connector	CDE2621	DIN Connector
	5-5-2	BTZ50P160FZK	Screw(×8)	BYC50P160FZK	Screw(×8)

●Parts List

Mark	No.	Part No.	Description
	1	AMZ30P120FZK	Screw
	2		Heat Sink Assy
◉	3	CWM2160	Main Unit
	4		Shield
	5		Bracket
	6		Heat Sink
	7		Cushion
	8	PMF30P080FMC	Screw
	9	CKS1602	Pin Jack
	10	CKS1156	Connector
	11	CKS1340	Connector(4P)
	12		Rubber
	13	CKR1001	Fuse Holder
	14	•••••	•••••
	15		Plug(4P)
	16	•••••	•••••
	17	BMZ30P050FMC	Screw
	18		Plug(2P)
	19		P. C. Board
	20	CBN-032	Nut
★	21	CXA2183	LED Assy
	22	BMZ30P060FMC	Screw
	23	CNC2099	Bracket
	24		Case
	25	CDE1839	Cord(4P)
★	26	CDE1885	Cord(4P)
★	27	CAA1135	Knob
★	28	CAC1701	Button
	29	CXA2417	Grille Assy
	30	BMZ50P060FZK	Screw

Mark	No.	Part No.	Description
	31	BMZ30P050FMC	Screw
	32	PMS30P060FZK	Screw
	33	PMZ40P080FMC	Screw
	34		Insulator
	35		Bracket
★★	36	μPC1298V	IC
	37	BMZ20P080FMC	Screw
	38	•••••	•••••
	39	PTZ20P080FMC	Screw
	40	CDE2467	Coad Assy
	41	•••••	•••••
	42	•••••	•••••
★★	43	CEK1136	Fuse(10A)
	44	CDE2621	DIN Connector
	45	CDE2151	Cord
★	46	CDE1840	Cord Assy
	47		Shield
	48		Shield
	49		Heat Sink
	50	BMZ26P080FMC	Screw
	51		Cushion

PACKING METHOD

- **Parts List (Page 57)**

GM-2000/EW				GM-2000A/EW	
Mark	No.	Part No.	Description	Part No.	Description
	1	CHG1467	Carton	CHG1721	Carton
	2	CRD1201	Owner's Manual	CRD1334	Owner's Manual
	5	CEA1338	Accessory Assy	CEA1507	Accessory Assy
	5-1	CDE2105	Cord	CDE2463	Cord Assy
	5-4	CDE1846	DIN Connector	CDE2620	DIN Connector
	5-5-2	BTZ50P160FZK	Screw(×8)	BYC50P160FZK	Screw(×8)

GM-1000/EW				GM-1000A/EW	
Mark	No.	Part No.	Description	Part No.	Description
	1	CHG1464	Carton	CHG1711	Carton
	2	CRD1198	Owner's Manual	CRD1333	Owner's Manual
	5	CEA1340	Accessory Assy	CEA1506	Accessory Assy
	5-1	CDE2109	Cord	CDE2467	Cord Assy
	5-3	CDE1836	Cord	CDE2151	Cord
	5-4	CDE1847	DIN Connector	CDE2621	DIN Connector
	5-5-2	BTZ50P160FZK	Screw(×8)	BYC50P160FZK	Screw(×8)

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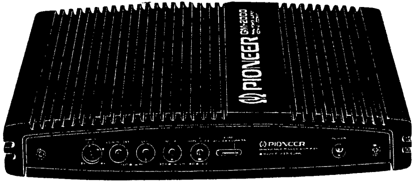
The future of sound and vision.

Service Manual

• GM-2000/ES



ORDER NO.
CRT1156

BRIDGEABLE POWER AMPLIFIER

GM-2000 ES EW UC

POWER AMPLIFIER

GM-1000 ES, EW, UC

CONTENTS

1. CONTROL AND THEIR USE 1
2. CONNECTION 2
3. DISASSEMBLY 5
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SPECIFICATIONS

- GM-2000

Power source	14.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Max. current consumption	15 A
Dimensions	265 (W) × 48 (H) × 232 (D) mm
Weight	3.0 kg (Leads for wiring not included)
Maximum power output	100 W × 2/200 W × 1
Continuous power output	60 W × 2/120 W × 1 (at 4 Ω, 1 kHz, 1% THD) 50 W × 2 /100 W × 1 (at 4 Ω, 20–20,000 Hz, 0.015%/0.03% THD)
Load impedance	4 Ω (2–8 Ω allowable)
Frequency response	10–50,000 Hz (+0dB, –1dB)
Signal-to-noise ratio	102 dB (IEC-A network)
Distortion	0.005% (at 50 W, 1 kHz)
Low pass filter cut off frequency	80 Hz
Low pass filter cut off slope	12dB/octave
Input level	DIN: 70–500 mV/20k Ω RCA: 0.2–2 V/7k Ω

- GM-1000

Power source	14.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Max. current consumption	10 A
Dimensions	265 (W) x 41 (H) x 225 (D) mm
Weight	2.7 kg (Cords for wiring not included)
Maximum power output	60W × 2
Continuous power output	36 W × 2 (at 4 Ω, 1 kHz, 1% THD) 30 W × 2 (at 4 Ω, 20—20,000 Hz, 0.015% THD)
Load impedance	4 Ω (4–8 Ω allowable)
Frequency response	10–50,000 Hz (+0dB, –1dB)
Signal-to-noise ratio	101 dB (IEC-A network)
Distortion	0.005% (at 30 W, 1 kHz)
Input level	DIN: 70–500 mV/20kΩ RCA: 0.2–2V/7kΩ

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

2020

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- **BFC Switch**

Throw SW5 (BFC switch) when <<BEETO>> is generated during reception of AM broadcast (MW, LW).

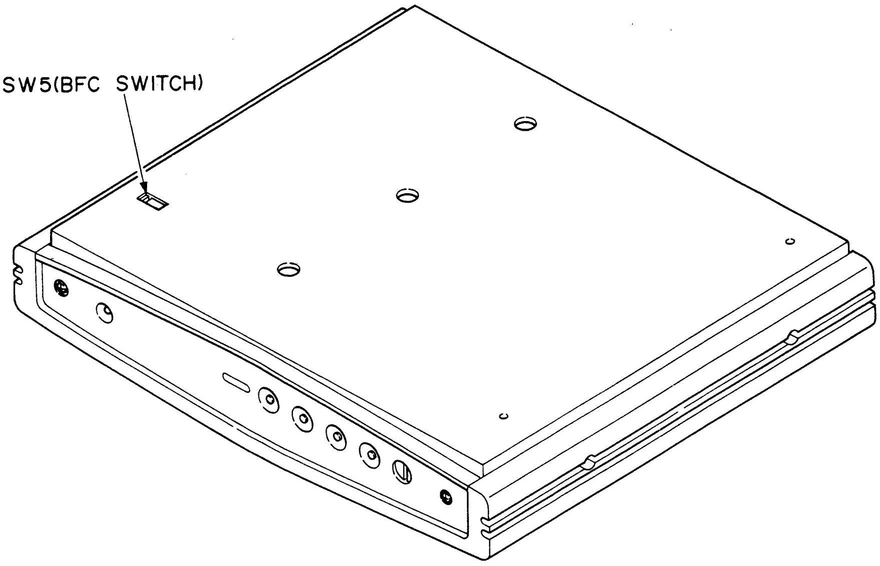
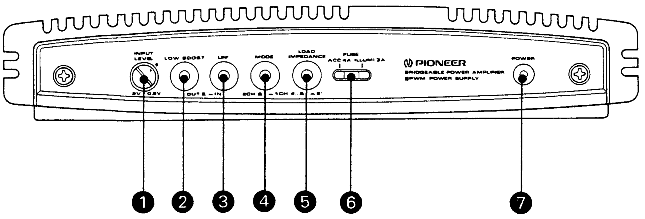

SW5(BFC SWITCH)

Fig. 1

1. CONTROL AND THEIR USE


INPUT LEVEL
2V
0.8V
LOW BOOST
OUT
IN
LPF
MODE
2CH
1CH
LOAD IMPEDANCE
4Ω
2Ω
FUSE
ACC 4A
ILLUMI 3A
PIONEER
BRIDGEABLE POWER AMPLIFIER
PWM POWER SUPPLY
POWER
1
2
3
4
5
6
7

GM-2000/ES

❶ Input Level Control
Adjust the input level control to suit the output level of the car stereo used with this amplifier. (See "Input Level Adjustment" on page 2.)

❷ Low Boost Switch
Press this switch to increase the volume of sounds in the low-frequency range if your car audio system does not reproduce enough bass sounds. This is effective when the amplifier is used to drive a sub-woofer.

- If there are no low-frequency sounds in the music you are listening to, or if you are using relatively small speakers, this switch may not make much difference.

❸ Low Pass Filter (LPF) Switch
If this switch is pressed when this amplifier is to be used to drive a sub-woofer, only sounds in the low-frequency range will be output.

❹ Mode Select Switch
Press this switch to use the amplifier as a mono amplifier.

- When the amplifier is used in this way, the speaker leads need to be connected accordingly. (See "Connecting Speaker Leads" on page 2.)

❺ Load Impedance Select Switch
Press this switch when the impedance of the speaker or speakers connected to this amplifier is less than 4 ohms.

❻ Fuse Window
There are a fuse for accessories and a fuse for illumination behind the front grill.

❼ Power Indicator
The power indicator lights when the power is switched on.

2. CONNECTION

Connect the components correctly as shown in the diagram.

- Test-connect all components before securing them into place. Test-operate your entire car stereo system to ensure that there are no faulty wiring connections between this unit and the rest of your car stereo system.
- The input selector of this amplifier functions automatically. Therefore, the amplifier may be used with either a Pioneer car stereo with DIN sockets or a car stereo with RCA pin jacks. For information about connecting a stereo, see the section entitled "When combined with a car stereo with DIN sockets" or that entitled "When combined with a car stereo with RCA pin jacks".
- When two channels (stereo) are used, the speakers should have a minimum rating of 100 W or more. When a single channel (mono) is used, the speaker should have a minimum rating of 200 W or more. If a speaker whose rating is below that recommended is used, the speaker may be damaged. The impedance of the speakers should be between 2 and 8 ohms.
- For detailed information concerning connections between different components and this unit consult their respective instruction manuals and follow those recommendations precisely.
- When wiring connecting leads into place secure them with clampers and adhesive electrician's tape. Additionally, to prevent any damage to the insulative coating of the connecting leads, protect them with adhesive electrician's tape wherever they may come into contact with any sharp edges.
- Wire all connecting leads so that they stay well clear of high-temperature areas such as the heater exhaust port.
- To operate the amplifier and car stereo properly, install the continuous power supply lead (orange) and the accessory power lead (red) correctly. If the leads are not installed correctly or are not connected at all, the amplifier and car stereo will not work.
- The supplied speaker lead with green stripes is not used for a single channel (mono) arrangement; keep it in case you need it in future.
- To use a car stereo with DIN sockets, use the optional component extension cable.

Input Level Adjustment

The input level adjustment knob is factory set as shown in Fig. 2. When a car stereo with DIN sockets is connected, adjust the input level as shown in Fig. 3. If the volume is insufficient even when the car stereo volume is increased, adjust the input level adjustment knob as shown in Fig. 3.

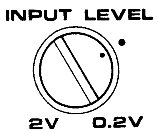


Fig. 2

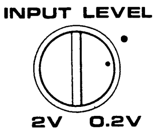


Fig. 3

Connecting Leads (Supplied)

Connecting Speaker Leads

- This amplifier has a mode select switch to select two-channel output (stereo) or one-channel output (mono). The speaker leads must be connected to suit the mode selected. Connect the speaker leads to the output terminals of the amplifier as shown in Fig. 4 and 5, paying attention to the polarities (+ and –) and lead colors.

When two channels (stereo) are used

- Set the mode select switch to the 2CH position.

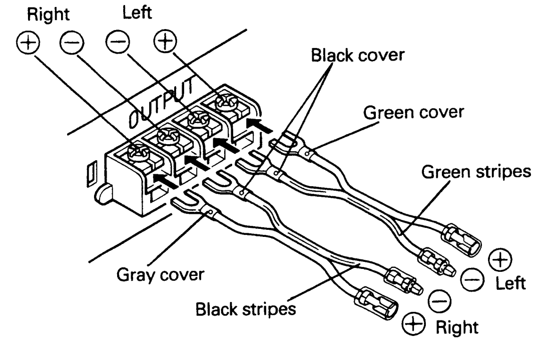


Fig. 4

When one channel (mono) is used

- Set the mode select switch to the 1CH position.
- The speaker lead with green stripes is not used; keep it in case you need it in future.

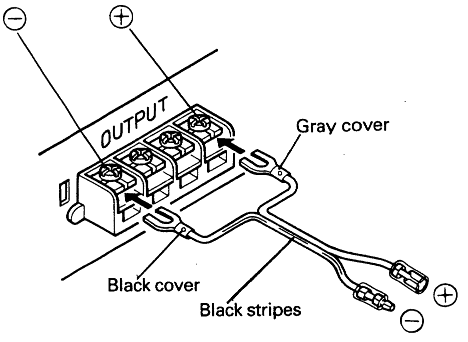


Fig. 5

Connecting the Continuous Power Supply Lead (Orange)

- Route the continuous power supply lead from the engine compartment to the passenger compartment and connect it to the amplifier. To prevent short-circuits, make sure you connect all the other leads first, then connect the end of the continuous power supply lead to the positive (+) terminal of the battery.

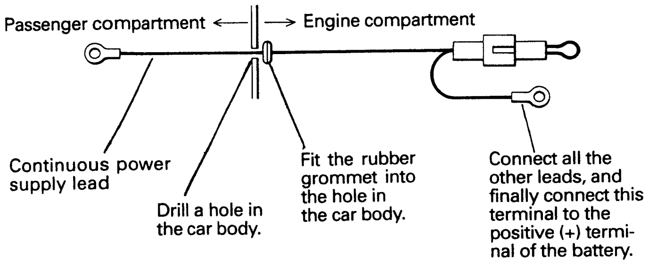

Passenger compartment ←
→ Engine compartment
Continuous power supply lead
Drill a hole in the car body.
Fit the rubber grommet into the hole in the car body.
Connect all the other leads, and finally connect this terminal to the positive (+) terminal of the battery.

Fig. 6

Procedure for Connecting Speaker Leads

1. Loosen the four output terminal screws at the rear of the amplifier in the middle.
2. Insert each speaker lead terminal into an output terminal according to the selected mode. (Fig. 7)
3. Tighten each output terminal screw.
4. Fit the large terminal cover. (Fig. 8)

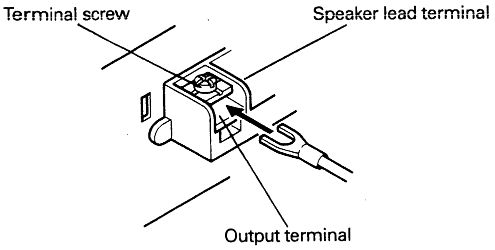
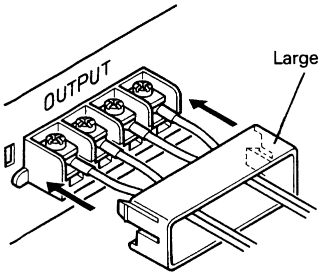

Terminal screw
Speaker lead terminal
Output terminal

Fig. 7


OUTPUT
Large terminal cover

- Pass the speaker leads through the large terminal cover, then fit the cover.

Fig. 8

Procedure for Connecting Continuous Power Supply Lead (Orange) and Grounding Lead (Black)

1. Pass the continuous power supply lead (orange) and the grounding lead (black) through the small terminal cover. (Fig. 9)
2. Remove the screws of the continuous power supply terminal and the grounding terminal at the rear of the amplifier on the left.
3. Replace the screws removed in step 2 in the terminals and tighten them. (Fig. 10)
4. Fit the small terminal cover. (Fig. 11)

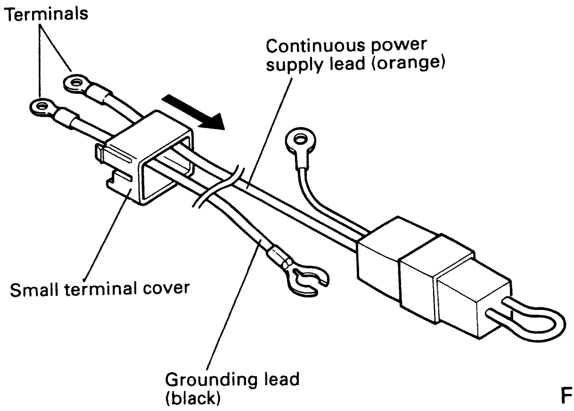

Terminals
Continuous power supply lead (orange)
Small terminal cover
Grounding lead (black)

Fig. 9

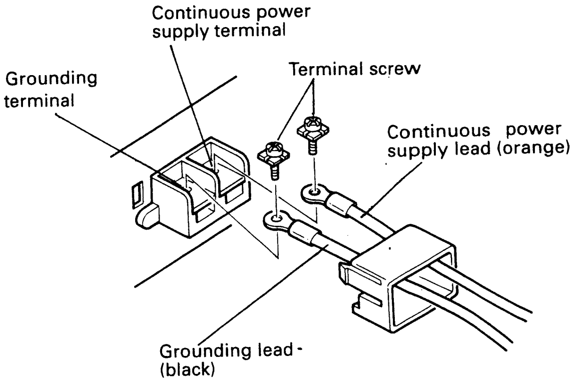

Continuous power supply terminal
Grounding terminal
Terminal screw
Continuous power supply lead (orange)
Grounding lead (black)

Fig. 10

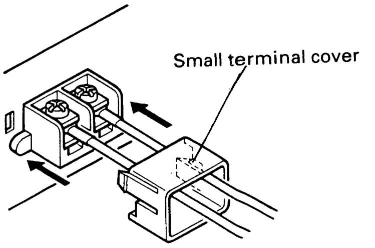

Small terminal cover

Fig. 11

2. CONNECTION

Connect the components correctly as shown in the diagram.

- Test-connect all components before securing them into place. Test-operate your entire car stereo system to ensure that there are no faulty wiring connections between this unit and the rest of your car stereo system.
- The input selector of this amplifier functions automatically. Therefore, the amplifier may be used with either a Pioneer car stereo with DIN sockets or a car stereo with RCA pin jacks. For information about connecting a stereo, see the section entitled "When combined with a car stereo with DIN sockets" or that entitled "When combined with a car stereo with RCA pin jacks".
- When two channels (stereo) are used, the speakers should have a minimum rating of 100 W or more. When a single channel (mono) is used, the speaker should have a minimum rating of 200 W or more. If a speaker whose rating is below that recommended is used, the speaker may be damaged. The impedance of the speakers should be between 2 and 8 ohms.
- For detailed information concerning connections between different components and this unit consult their respective instruction manuals and follow those recommendations precisely.
- When wiring connecting leads into place secure them with clampers and adhesive electrician's tape. Additionally, to prevent any damage to the insulative coating of the connecting leads, protect them with adhesive electrician's tape wherever they may come into contact with any sharp edges.
- Wire all connecting leads so that they stay well clear of high-temperature areas such as the heater exhaust port.
- To operate the amplifier and car stereo properly, install the continuous power supply lead (orange) and the accessory power lead (red) correctly. If the leads are not installed correctly or are not connected at all, the amplifier and car stereo will not work.
- The supplied speaker lead with green stripes is not used for a single channel (mono) arrangement; keep it in case you need it in future.
- To use a car stereo with DIN sockets, use the optional component extension cable.

Input Level Adjustment

The input level adjustment knob is factory set as shown in Fig. 2. When a car stereo with DIN sockets is connected, adjust the input level as shown in Fig. 3. If the volume is insufficient even when the car stereo volume is increased, adjust the input level adjustment knob as shown in Fig. 3.

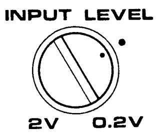


Fig. 2

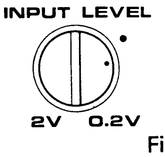


Fig. 3

Connecting Leads (Supplied)

Connecting Speaker Leads

- This amplifier has a mode select switch to select two-channel output (stereo) or one-channel output (mono). The speaker leads must be connected to suit the mode selected. Connect the speaker leads to the output terminals of the amplifier as shown in Fig. 4 and 5, paying attention to the polarities (+ and –) and lead colors.

When two channels (stereo) are used

- Set the mode select switch to the 2CH position.

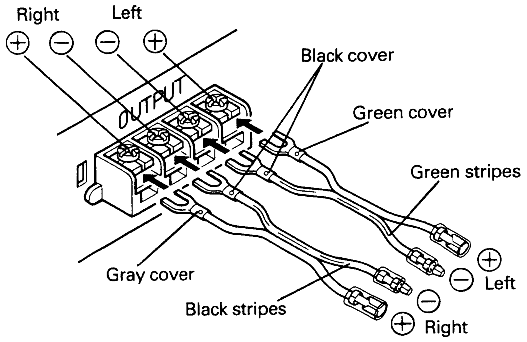


Fig. 4

When one channel (mono) is used

- Set the mode select switch to the 1CH position.
- The speaker lead with green stripes is not used; keep it in case you need it in future.

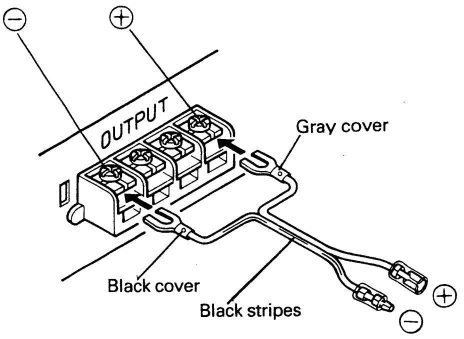


Fig. 5

Connecting the Continuous Power Supply Lead (Orange)

- Route the continuous power supply lead from the engine compartment to the passenger compartment and connect it to the amplifier. To prevent short-circuits, make sure you connect all the other leads first, then connect the end of the continuous power supply lead to the positive (+) terminal of the battery.

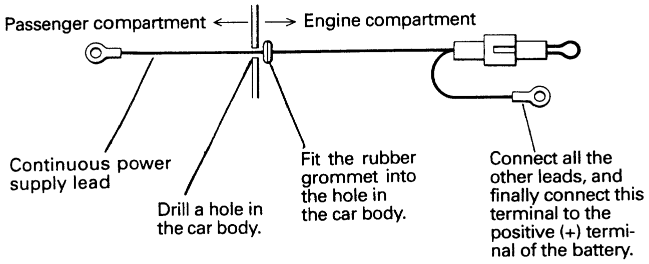

Passenger compartment ←
→ Engine compartment
Continuous power supply lead
Drill a hole in the car body.
Fit the rubber grommet into the hole in the car body.
Connect all the other leads, and finally connect this terminal to the positive (+) terminal of the battery.

Fig. 6

Procedure for Connecting Speaker Leads

1. Loosen the four output terminal screws at the rear of the amplifier in the middle.
2. Insert each speaker lead terminal into an output terminal according to the selected mode. (Fig. 7)
3. Tighten each output terminal screw.
4. Fit the large terminal cover. (Fig. 8)

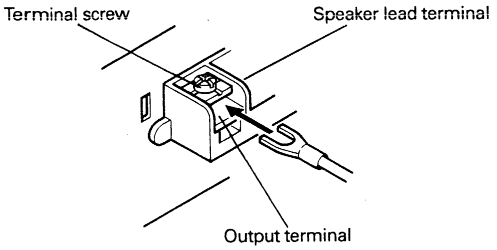
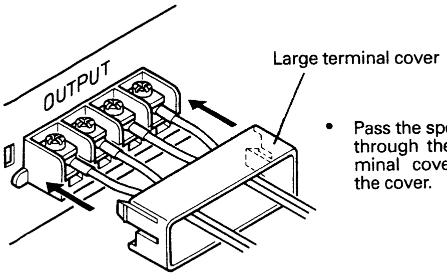

Terminal screw
Speaker lead terminal
Output terminal

Fig. 7


OUTPUT
Large terminal cover

- Pass the speaker leads through the large terminal cover, then fit the cover.

Fig. 8

Procedure for Connecting Continuous Power Supply Lead (Orange) and Grounding Lead (Black)

1. Pass the continuous power supply lead (orange) and the grounding lead (black) through the small terminal cover. (Fig. 9)
2. Remove the screws of the continuous power supply terminal and the grounding terminal at the rear of the amplifier on the left.
3. Replace the screws removed in step 2 in the terminals and tighten them. (Fig. 10)
4. Fit the small terminal cover. (Fig. 11)

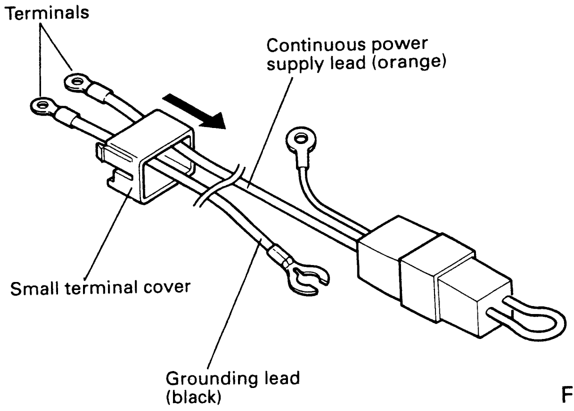

Terminals
Continuous power supply lead (orange)
Small terminal cover
Grounding lead (black)

Fig. 9

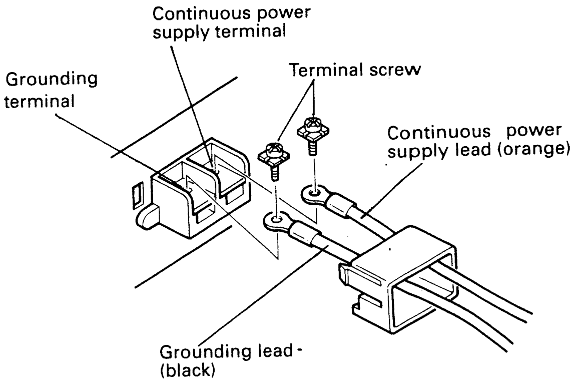

Continuous power supply terminal
Grounding terminal
Terminal screw
Continuous power supply lead (orange)
Grounding lead (black)

Fig. 10

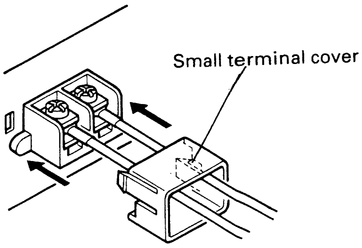
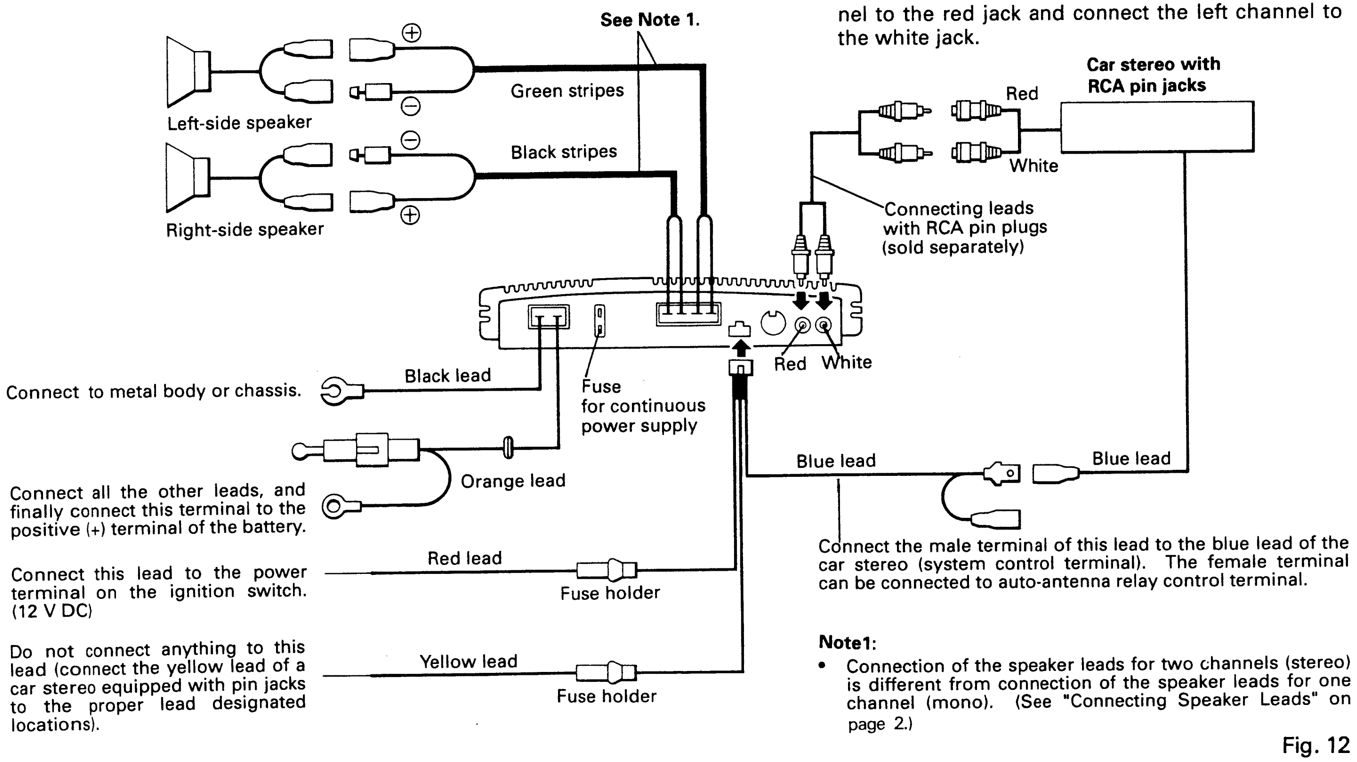

Small terminal cover

Fig. 11

When Combined with a Car Stereo with RCA Pin Jacks

- When connecting connecting leads with RCA pin plugs (sold separately) to the auxiliary input jacks (red and white) of this unit, connect the right channel to the red jack and connect the left channel to the white jack.


See Note 1.
Left-side speaker
Right-side speaker
Green stripes
Black stripes
Car stereo with RCA pin jacks
Red
White
Connecting leads with RCA pin plugs (sold separately)
Red
White
Fuse for continuous power supply
Connect to metal body or chassis.
Black lead
Orange lead
Blue lead
Blue lead
Red lead
Fuse holder
Yellow lead
Fuse holder

Connect all the other leads, and finally connect this terminal to the positive (+) terminal of the battery.

Connect this lead to the power terminal on the ignition switch. (12 V DC)

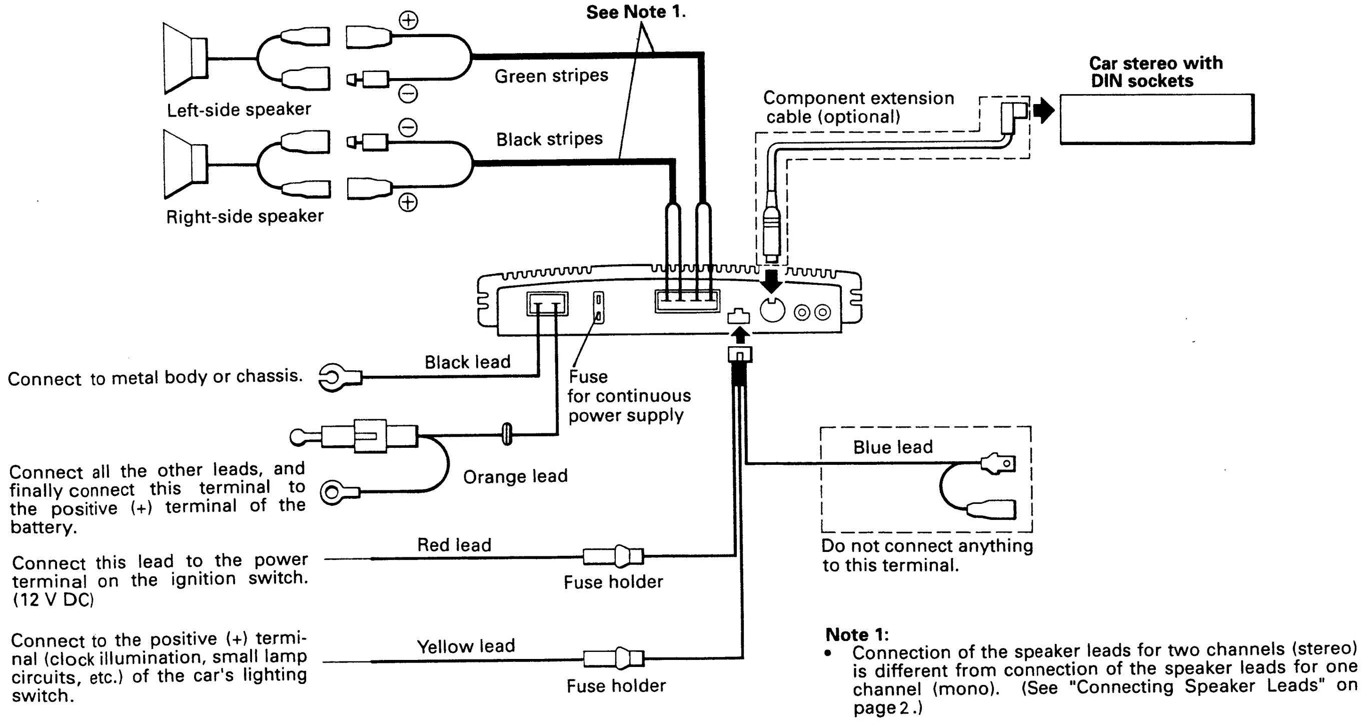
Do not connect anything to this lead (connect the yellow lead of a car stereo equipped with pin jacks to the proper lead designated locations).

Connect the male terminal of this lead to the blue lead of the car stereo (system control terminal). The female terminal can be connected to auto-antenna relay control terminal.

Note1:
- Connection of the speaker leads for two channels (stereo) is different from connection of the speaker leads for one channel (mono). (See "Connecting Speaker Leads" on page 2.)

Fig. 12

When Combined with a Car Stereo with DIN sockets


See Note 1.
Left-side speaker
Right-side speaker
Green stripes
Black stripes
Component extension cable (optional)
Car stereo with DIN sockets
Fuse for continuous power supply
Connect to metal body or chassis.
Black lead
Orange lead
Blue lead
Red lead
Fuse holder
Yellow lead
Fuse holder

Connect all the other leads, and finally connect this terminal to the positive (+) terminal of the battery.

Connect this lead to the power terminal on the ignition switch. (12 V DC)

Connect to the positive (+) terminal (clock illumination, small lamp circuits, etc.) of the car's lighting switch.

Do not connect anything to this terminal.

Note 1:
- Connection of the speaker leads for two channels (stereo) is different from connection of the speaker leads for one channel (mono). (See "Connecting Speaker Leads" on page 2.)

Fig. 13

3. DISASSEMBLY

• Remove the Heat Sink

1. Remove the five screws A and three screws B.
2. Remove the heat sink.

Attention:
Be sure to screw in order of ①, ② and ③ when installing the heat sink.

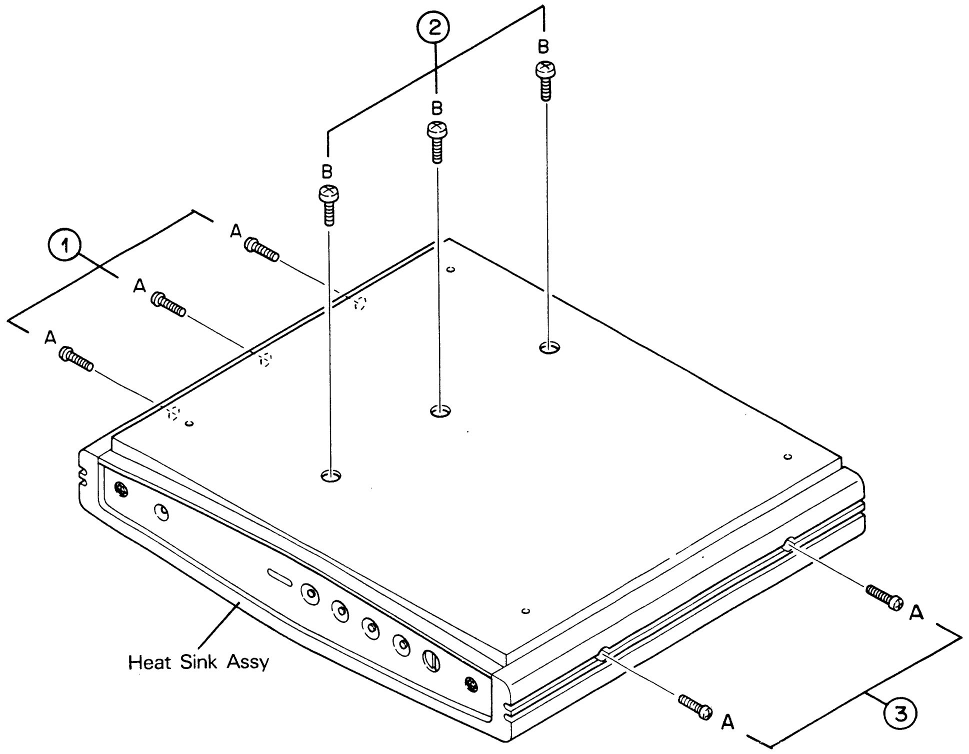

②
B
B
B
①
A
A
A
A
A
③
Heat Sink Assy

Fig. 14

• Remove the Main Unit

1. Remove the four screws D and four screws E.
2. Remove the knob and four buttons.
3. Remove the main unit.

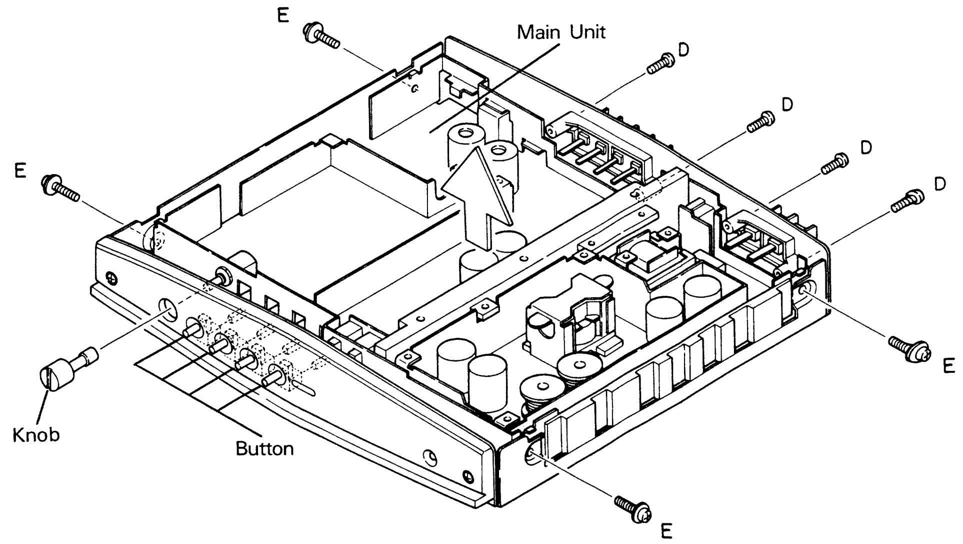
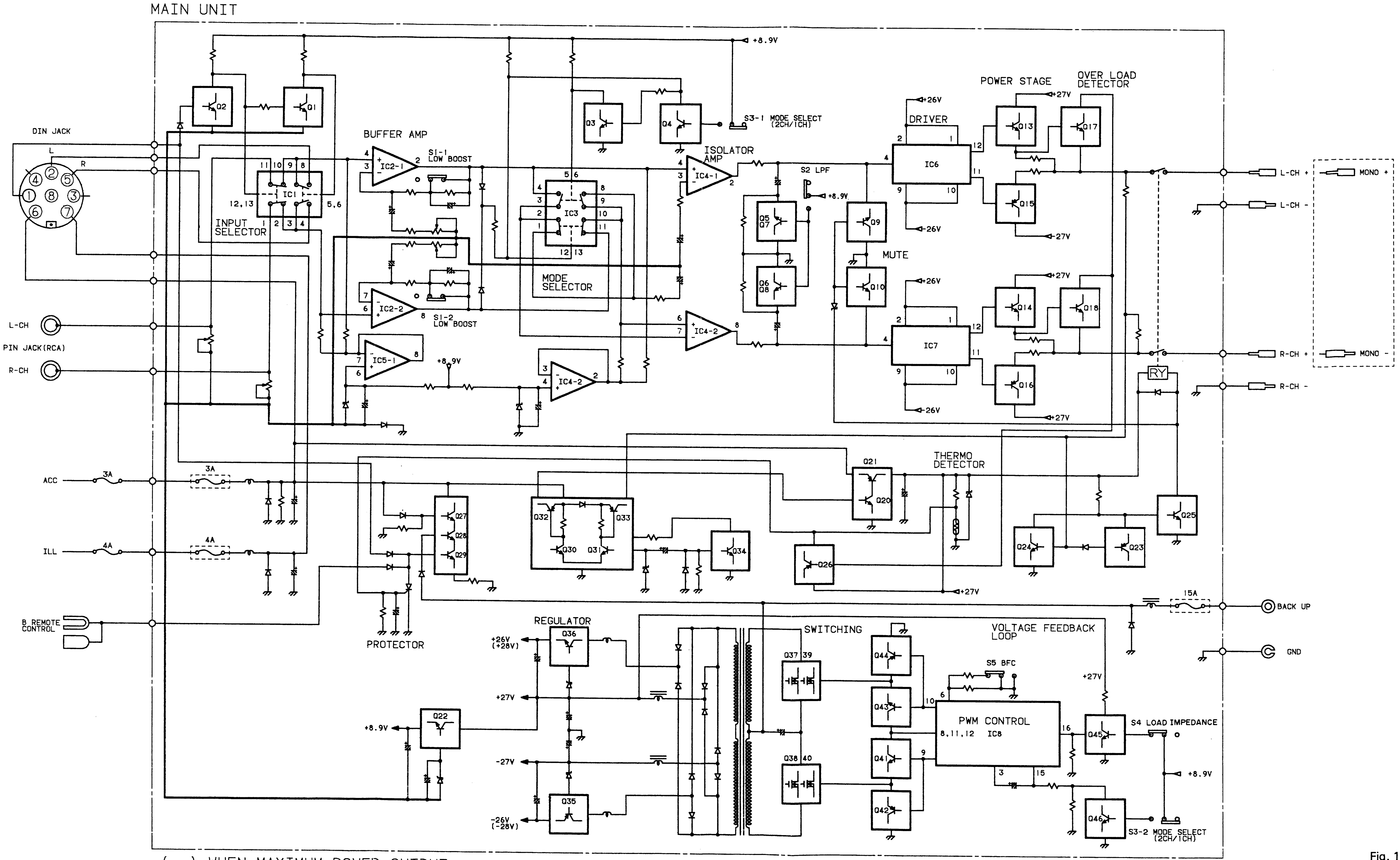

E
Main Unit
D
D
D
D
E
E
E
Knob
Button

Fig. 15

4. CIRCUIT DESCRIPTION

4.1 BLOCK DIAGRAM (GM-2000/ES)

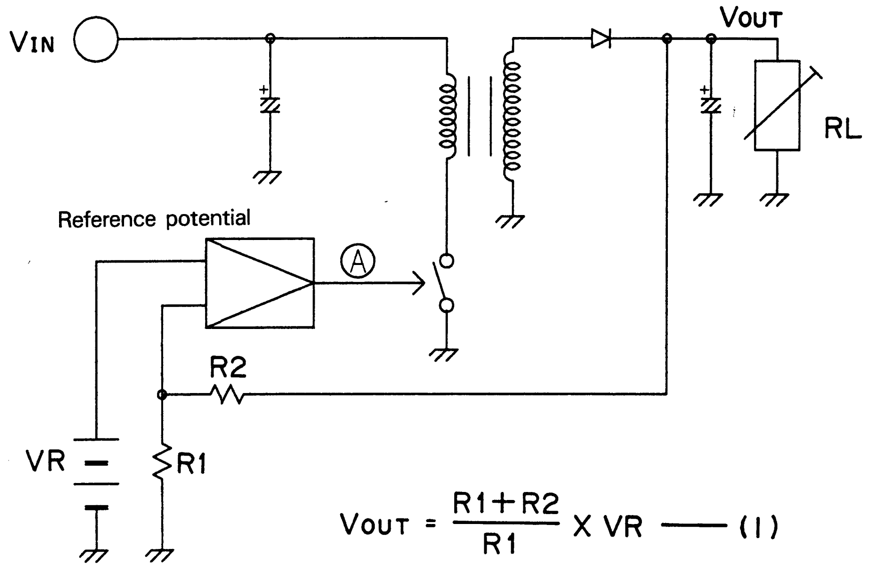

MAIN UNIT
DIN JACK
L
R
INPUT SELECTOR
IC1
Q1
Q2
BUFFER AMP
IC2-1
IC2-2
S1-1 LOW BOOST
S1-2 LOW BOOST
IC5-1
IC4-2
+8.9V
Q3
Q4
S3-1 MODE SELECT (2CH/1CH)
IC3
MODE SELECTOR
ISOLATOR AMP
IC4-1
IC4-2
S2 LPF
Q5 Q7
Q6 Q8
Q9
Q10
MUTE
DRIVER
IC6
IC7
+26V
-26V
POWER STAGE
OVER LOAD DETECTOR
Q13
Q15
Q14
Q16
Q17
Q18
+27V
-27V
L-CH +
L-CH -
R-CH +
R-CH -
MONO +
MONO -
RY
L-CH
PIN JACK (RCA)
R-CH
ACC
ILL
3A
4A
B REMOTE CONTROL
PROTECTOR
Q27
Q28
Q29
Q32
Q33
Q30
Q31
Q34
Q21
Q20
Q26
THERMO DETECTOR
Q24
Q23
Q25
15A
BACK UP
GND
REGULATOR
Q36
Q35
Q22
+26V (+28V)
+27V
-27V
-26V (-28V)
SWITCHING
Q37 39
Q38 40
Q44
Q43
Q41
Q42
VOLTAGE FEEDBACK LOOP
S5 BFC
PWM CONTROL
IC8
Q45
Q46
S4 LOAD IMPEDANCE
S3-2 MODE SELECT (2CH/1CH)

( ) WHEN MAXIMUM POWER OUTPUT

Fig. 16

4.2 PWM (Pulse Width Modulation) POWER SUPPLY

The PWM power supply is a circuit that maintains stable secondary voltage in a DC/DC converter, regardless of the voltage fluctuation and load fluctuation of the primary voltage.
In actual operation, the output voltage (Vout) expressed by formula (1) is maintained at a stable level. Consequently, when load fluctuation or fluctuation of the primary (battery) voltage occurs, the PWM circuit illustrated in Fig. 17-2 and 17-3 to control the pulse width of the gate voltage at A.


VIN
VOUT
RL
Reference potential
Ⓐ
R2
VR
R1

$$V_{OUT} = \frac{R1+R2}{R1} \times VR \quad \text{——} (1)$$

Fig. 17-1

- **Waveforms at point A (V: 10V/div, H: 10μS/div)**

No signal

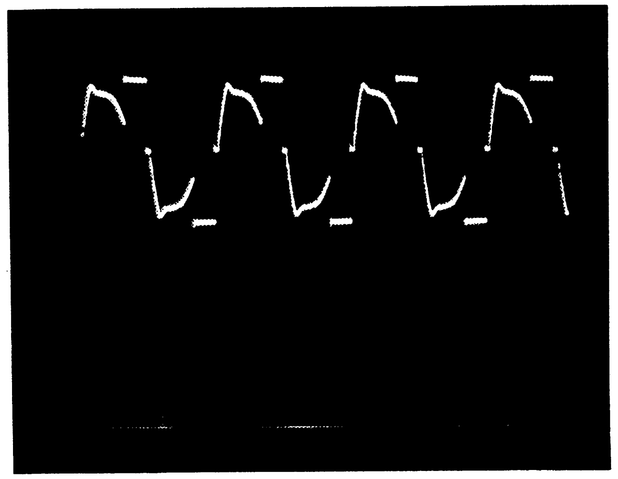


Fig. 17-2

Large output or drop in input voltage (VIN)

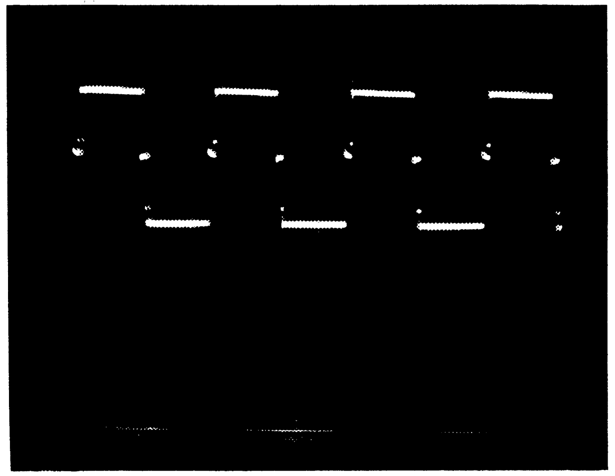


Fig. 17-3

5. ADJUSTMENT

- **Connection Diagram**

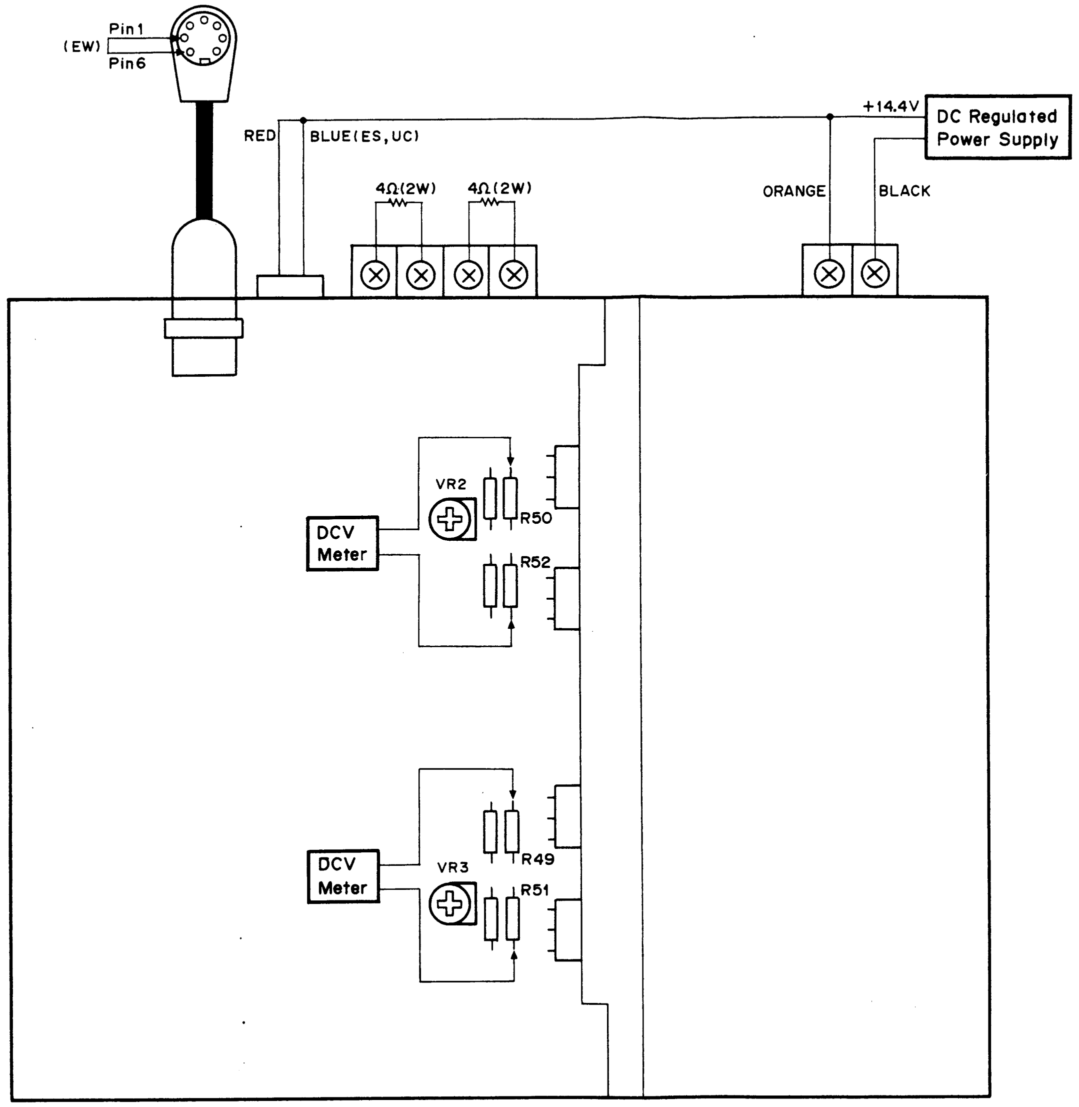

Pin1
(EW)
Pin6
RED
BLUE(ES,UC)
4Ω(2W)
4Ω(2W)
+14.4V
DC Regulated Power Supply
ORANGE
BLACK
VR2
R50
R52
DCV Meter
VR3
R49
R51
DCV Meter

Fig. 18

5.1 IDLE CURRENT ADJUSTMENT

No.	Adjusting Point	Adjustment Method
1		Rotate VR2 and VR3 counterclockwise. Turn the power on, and wait about 30 minutes.
2	VR2,3	DC V Meter: 6.6 mV $^{+1.1\text{ mV}}_{-2.2\text{ mV}}$ (GM-2000) DC V Meter: 13.2 mV $^{+2.2\text{ mV}}_{-4.4\text{ mV}}$ (GM-1000)

- **IC**

fluctua-

l fluctu-
e pulse

ig. 17-1

g. 17-3

5. ADJUSTMENT

- **Connection Diagram**

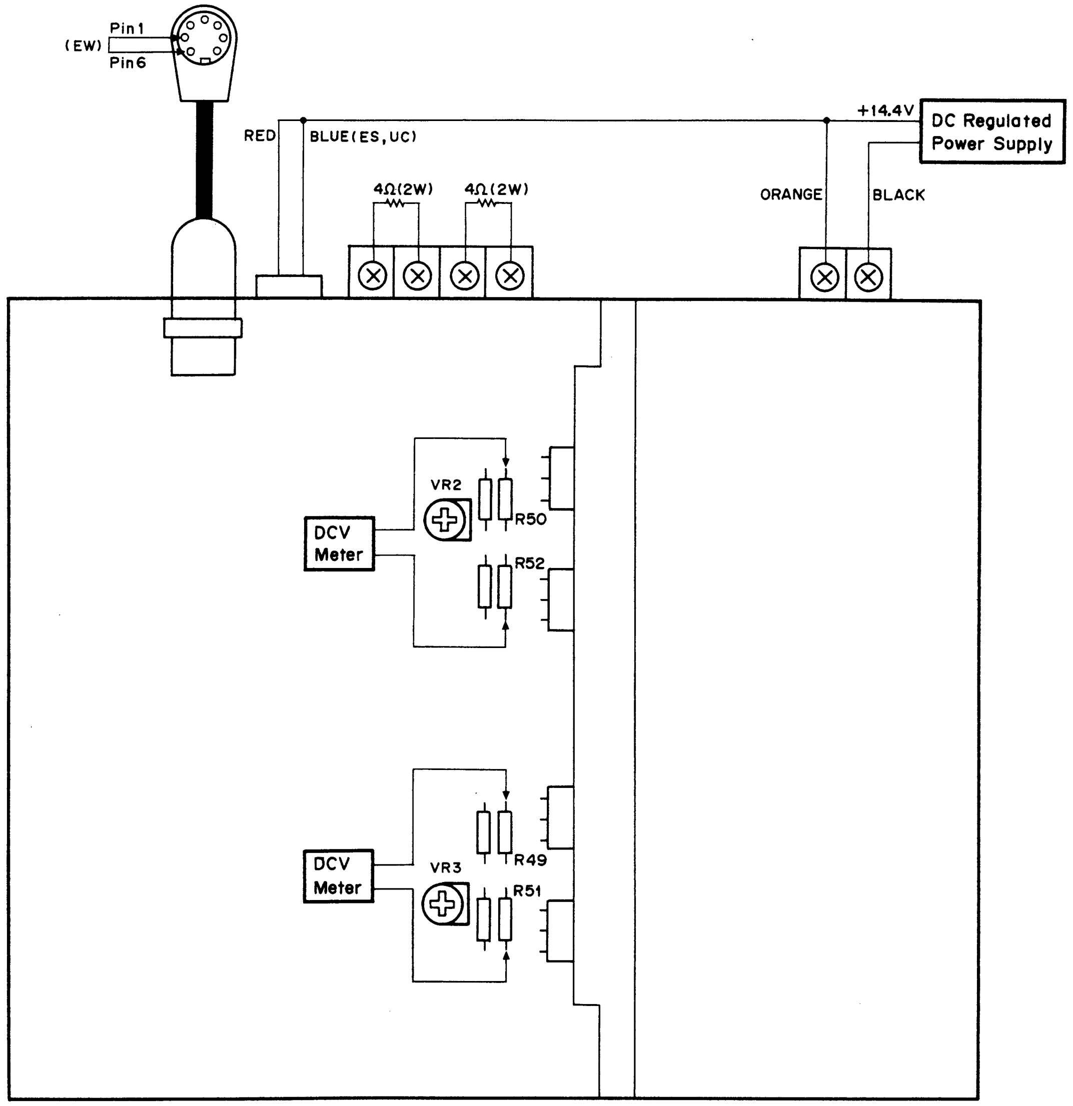
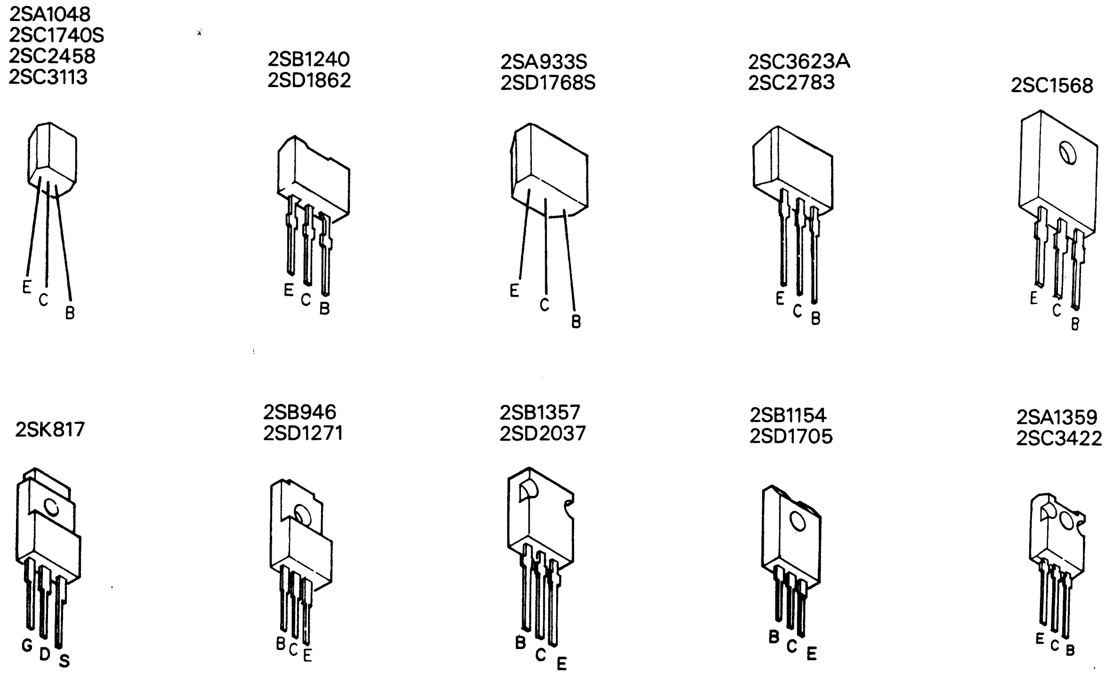

Pin1
(EW)
Pin6
RED
BLUE(ES,UC)
4Ω(2W)
4Ω(2W)
+14.4V
DC Regulated Power Supply
ORANGE
BLACK
VR2
R50
R52
DCV Meter
VR3
R49
R51
DCV Meter

Fig. 18

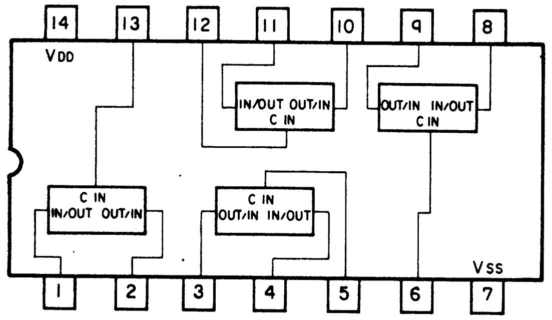
5.1 IDLE CURRENT ADJUSTMENT

No.	Adjusting Point	Adjustment Method
1		Rotate VR2 and VR3 counterclockwise. Turn the power on, and wait about 30 minutes.
2	VR2,3	DC V Meter: $6.6\text{ mV}{}^{+1.1\text{ mV}}_{-2.2\text{ mV}}$ (GM-2000) DC V Meter: $13.2\text{ mV}{}^{+2.2\text{ mV}}_{-4.4\text{ mV}}$ (GM-1000)

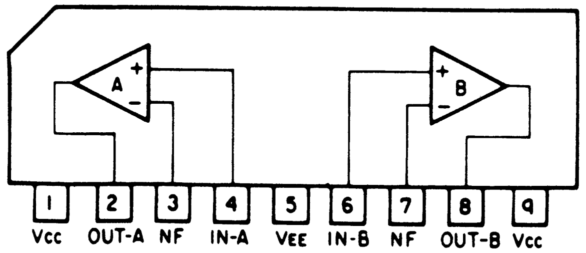
- **ICs and Transistors**


2SA1048
2SC1740S
2SC2458
2SC3113
E C B
2SB1240
2SD1862
E C B
2SA933S
2SD1768S
E C B
2SC3623A
2SC2783
E C B
2SC1568
E C B
2SK817
G D S
2SB946
2SD1271
B C E
2SB1357
2SD2037
B C E
2SB1154
2SD1705
B C E
2SA1359
2SC3422
E C B

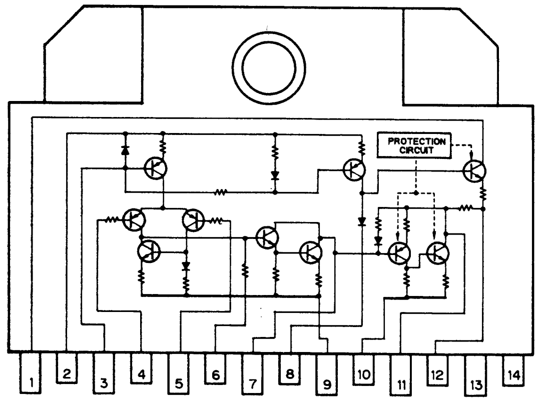
TC4066BP


14
13
12
11
10
9
8
VDD
IN/OUT OUT/IN
C IN
OUT/IN IN/OUT
C IN
C IN
IN/OUT OUT/IN
C IN
OUT/IN IN/OUT
VSS
1
2
3
4
5
6
7

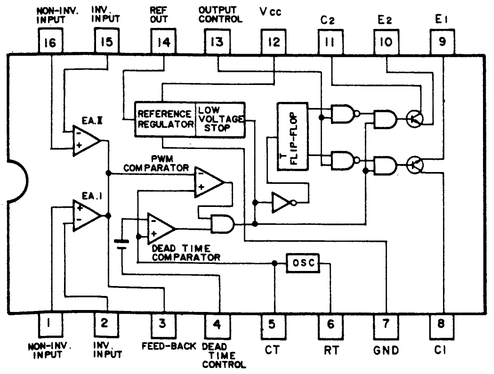
NJM2068S
NJM4558S


A
B
+
−
1
2
3
4
5
6
7
8
9
Vcc
OUT-A
NF
IN-A
VEE
IN-B
NF
OUT-B
Vcc

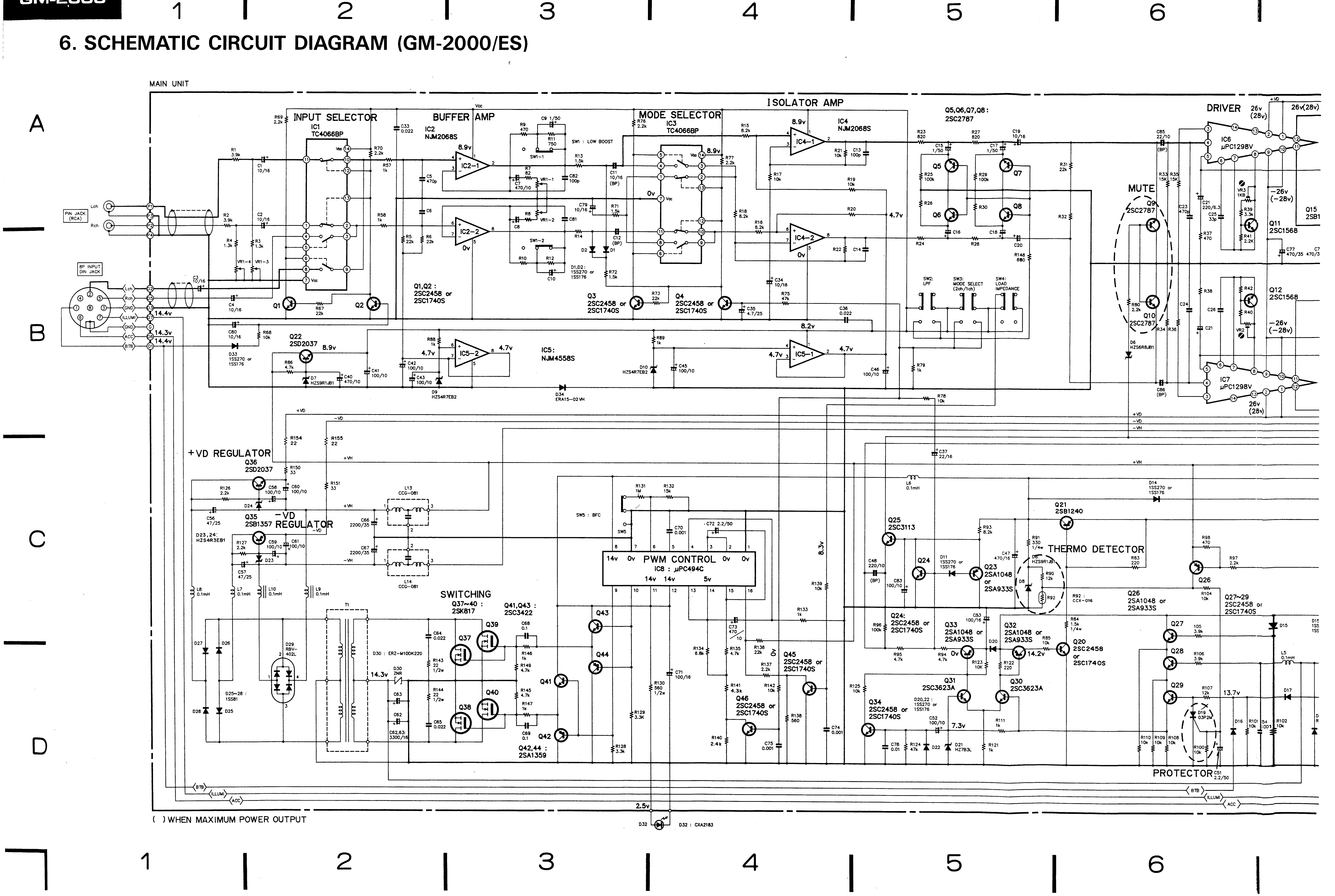
μPC1298V


PROTECTION CIRCUIT
1
2
3
4
5
6
7
8
9
10
11
12
13
14

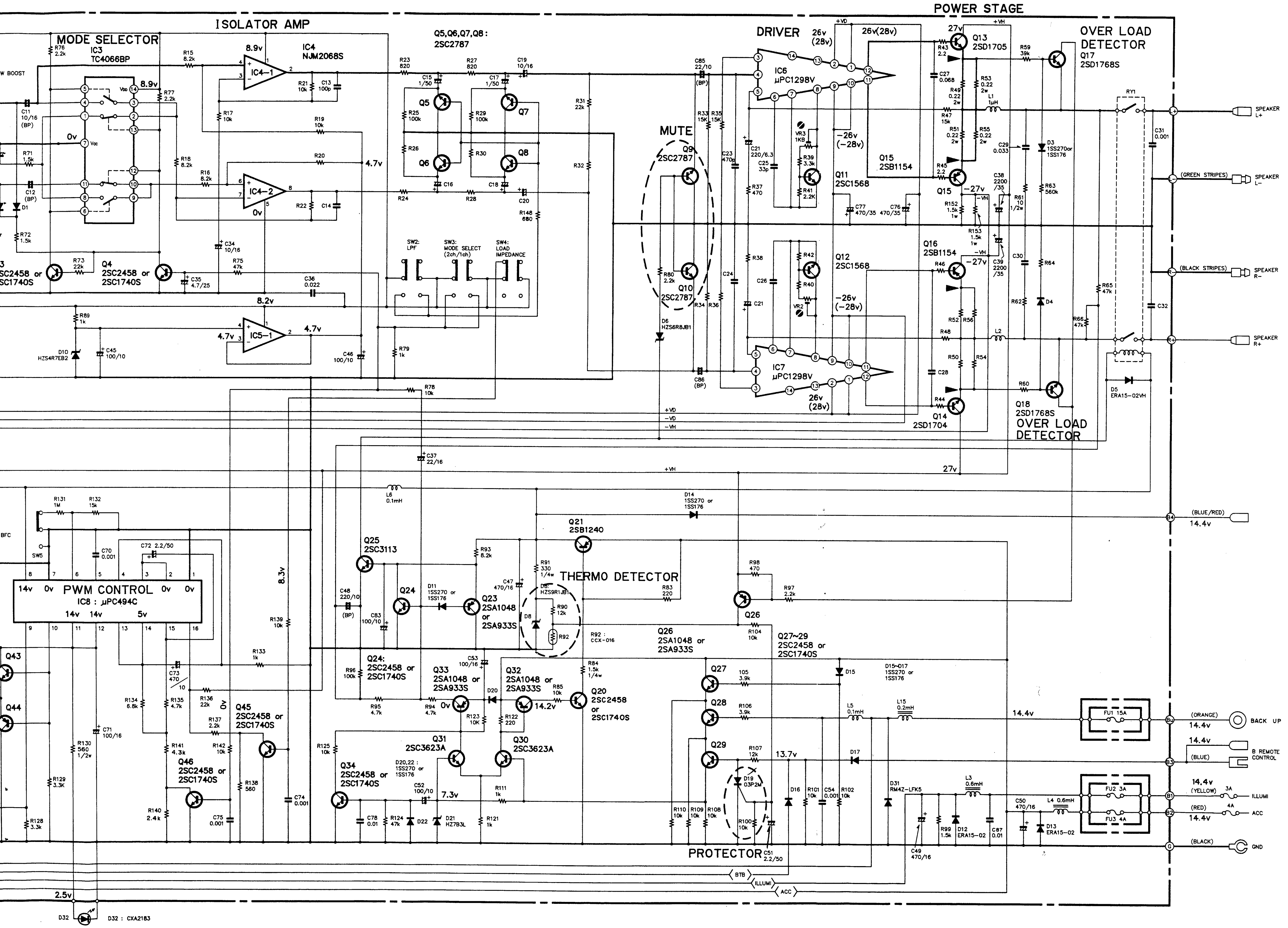
μPC494C


NON-INV. INPUT
INV INPUT
REF OUT
OUTPUT CONTROL
Vcc
C2
E2
E1
16
15
14
13
12
11
10
9
EA II
REFERENCE REGULATOR
LOW VOLTAGE STOP
FLIP-FLOP
PWM COMPARATOR
EA I
DEAD TIME COMPARATOR
OSC
1
2
3
4
5
6
7
8
NON-INV. INPUT
INV INPUT
FEED-BACK
DEAD TIME CONTROL
CT
RT
GND
C1

6. SCHEMATIC CIRCUIT DIAGRAM (GM-2000/ES)


1
2
3
4
5
6
A
B
C
D
MAIN UNIT
INPUT SELECTOR
IC1 TC4066BP
BUFFER AMP
IC2 NJM2068S
MODE SELECTOR
IC3 TC4066BP
ISOLATOR AMP
IC4 NJM2068S
Q5,Q6,Q7,Q8 : 2SC2787
DRIVER
IC6 µPC1298V
IC7 µPC1298V
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q15 2SB1
PIN JACK (RCA)
Lch
Rch
BP INPUT DIN JACK
SW1 : LOW BOOST
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
Q1,Q2 : 2SC2458 or 2SC1740S
Q3 2SC2458 or 2SC1740S
Q4 2SC2458 or 2SC1740S
Q22 2SD2037
IC5: NJM4558S
D1,D2 : 1SS270 or 1SS176
D7 HZS9R1JB1
D9 HZS4R7EB2
D10 HZS4R7EB2
D33 1SS270 or 1SS176
D34 ERA15-02VH
D6 HZS6R8JB1
+VD REGULATOR
Q36 2SD2037
-VD REGULATOR
Q35 2SB1357
D23,24: HZS4R3EB1
L13 CCG-081
L14 CCG-081
SWITCHING
Q37~40 : 2SK817
Q41,Q43 : 2SC3422
Q42,44 : 2SA1359
D25~28 : 1SS81
D29 RBV-402L
D30 : ERZ-M10DK220
C62,63: 3300/16
SW5 : BFC
PWM CONTROL
IC8 : µPC494C
Q45 2SC2458 or 2SC1740S
Q46 2SC2458 or 2SC1740S
D32 : CXA2183
Q25 2SC3113
Q24
Q24: 2SC2458 or 2SC1740S
Q21 2SB1240
THERMO DETECTOR
D8 HZS9R1JB1
D11 1SS270 or 1SS176
Q23 2SA1048 or 2SA933S
R92 : CCX-016
D14 1SS270 or 1SS176
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
D19 03P2M
PROTECTOR
8.9v
4.7v
8.2v
14.4v
14.3v
2.5v
7.3v
13.7v
14.2v
26v (28v)
-26v (-28v)
+VD
-VD
+VH
-VH
BTB
ILLUMI
ACC

( ) WHEN MAXIMUM POWER OUTPUT


4
5
6
7
8
9
A
B
C
D
MODE SELECTOR
IC3 TC4066BP
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
Q5,Q6,Q7,Q8 : 2SC2787
POWER STAGE
DRIVER
IC6 μPC1298V
IC7 μPC1298V
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q13 2SD1705
Q14 2SD1704
Q15 2SB1154
Q16 2SB1154
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
RY1
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
Q3 2SC2458 or 2SC1740S
Q4 2SC2458 or 2SC1740S
SPEAKER L+
(GREEN STRIPES) SPEAKER L−
(BLACK STRIPES) SPEAKER R−
SPEAKER R+
PWM CONTROL
IC8 : μPC494C
SW5
BFC
Q21 2SB1240
Q25 2SC3113
Q24
Q24: 2SC2458 or 2SC1740S
Q23 2SA1048 or 2SA933S
THERMO DETECTOR
R92 : CCX-016
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q20 2SC2458 or 2SC1740S
Q32 2SA1048 or 2SA933S
Q33 2SA1048 or 2SA933S
Q30 2SC3623A
Q31 2SC3623A
Q34 2SC2458 or 2SC1740S
Q43
Q44
Q45 2SC2458 or 2SC1740S
Q46 2SC2458 or 2SC1740S
PROTECTOR
(BLUE/RED) 14.4v
(ORANGE) 14.4v BACK UP
FU1 15A
14.4v B REMOTE CONTROL
(BLUE)
14.4v (YELLOW) 3A ILLUMI
(RED) 14.4v 4A ACC
FU2 3A
FU3 4A
(BLACK) GND
BTB
ILLUMI
ACC
D32 : CXA2183

SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF

SW2: LPF SWITCH .... ON-OFF

SW3: MODE SELECT SWITCH 1ch-2ch

SW4: LOAD IMPEDANCE SWITCH 2Ω-4Ω

SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch position.

Fig. 19

1 2 3 4 5 6

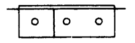
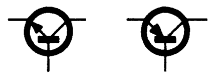
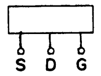
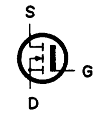
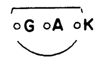
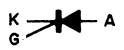
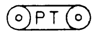
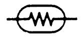
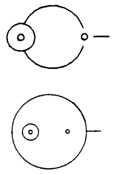
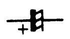
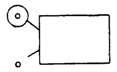
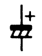
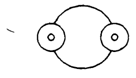
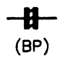
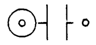
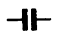
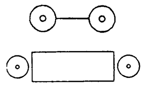
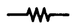
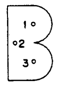
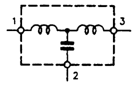
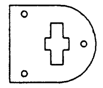
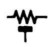
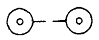
7. CONNECTION DIAGRAM (GM-2000/ES)

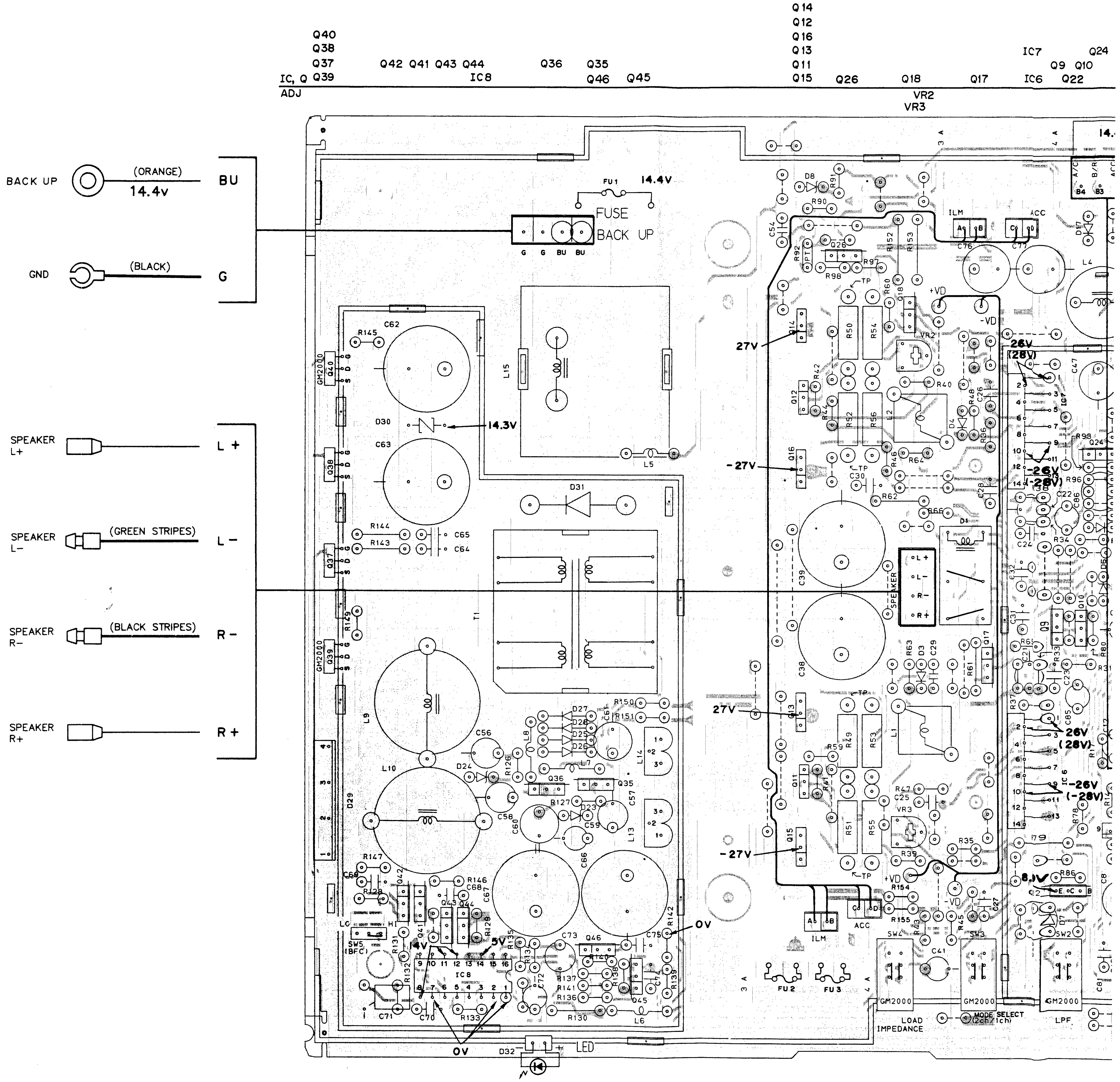
A

B

C

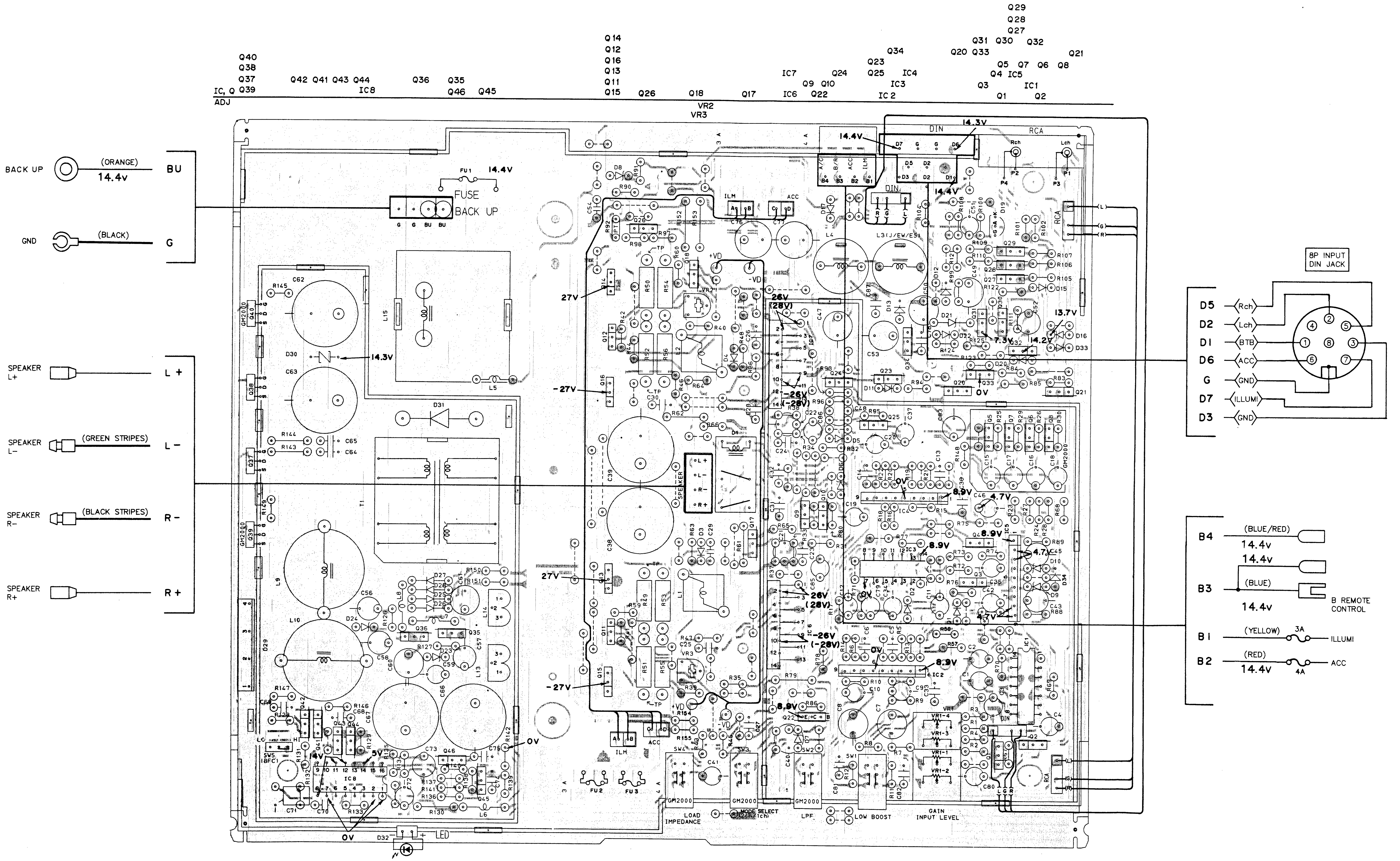
D

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


Q40
Q38
Q37
IC, Q Q39
ADJ
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q46 Q45
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q24
Q9 Q10
Q22
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L +
SPEAKER L−
(GREEN STRIPES)
L −
SPEAKER R−
(BLACK STRIPES)
R −
SPEAKER R+
R +
FU1 14.4V
FUSE
BACK UP
14.3V
27V
−27V
26V (28V)
−26V (−28V)
8.1V
0V
14V
5V
LED
D32
ILM
ACC
SPEAKER
FU2
FU3
GM2000
LOAD IMPEDANCE
MODE SELECT (2ch/1ch)
LPF

( ) WHEN MAXIMUM POWER OUTPUT

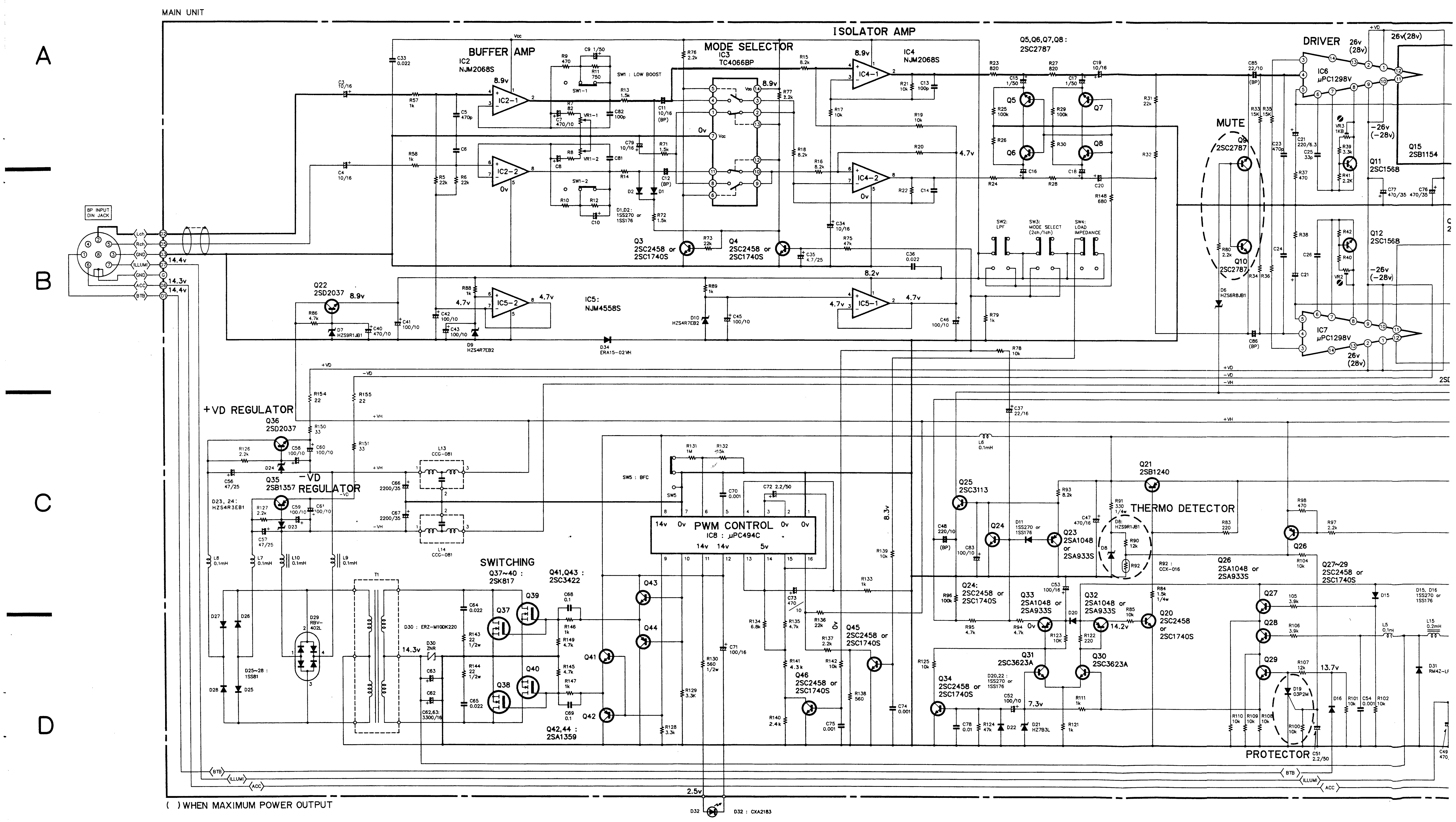
1 2 3 4 5 6


IC, Q ADJ
Q40 Q38 Q37 Q39
Q42 Q41 Q43 Q44 IC8
Q36
Q35 Q46
Q45
Q14 Q12 Q16 Q13 Q11 Q15
Q26
Q18
VR2 VR3
Q17
IC7 IC6
Q9 Q10 Q22
Q24
Q34 Q23 Q25
IC4 IC3 IC 2
Q29 Q28 Q27
Q31 Q30 Q32
Q20 Q33
Q21
Q5 Q7 Q6 Q8
Q4 IC5
Q3 IC1
Q1 Q2
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
FU1 14.4V
FUSE
BACK UP
G G BU BU
SPEAKER L+
L +
SPEAKER L−
(GREEN STRIPES)
L −
SPEAKER R−
(BLACK STRIPES)
R −
SPEAKER R+
R +
14.3V
27V
−27V
27V
−27V
26V (28V)
−26V (−28V)
26V (28V)
−26V (−28V)
14.4V
14.3V
DIN
RCA
Rch
Lch
P2 P1 P4 P3
A/C B/R ACC ILM
B4 B3 B2 B1
ILM ACC
14.4V
13.7V
14.2V
7.3V
0V
8.9V
4.7V
8.9V
8.9V
4.7V
4.7V
0V
8.9V
8.9V
0V
14V
5V
0V
0V
SPEAKER
LED
D32
SW5 (BFC)
SW4 SW3 SW2 SW1
LOAD IMPEDANCE
MODE SELECT
LPF
LOW BOOST
GAIN INPUT LEVEL
FU2 FU3
3A 4A
GM2000
8P INPUT DIN JACK
D5 (Rch)
D2 (Lch)
D1 (BTB)
D6 (ACC)
G (GND)
D7 (ILLUMI)
D3 (GND)
B4 (BLUE/RED) 14.4v
B3 14.4v (BLUE) 14.4v
B REMOTE CONTROL
B1 (YELLOW) 3A ILLUMI
B2 (RED) 14.4v 4A ACC

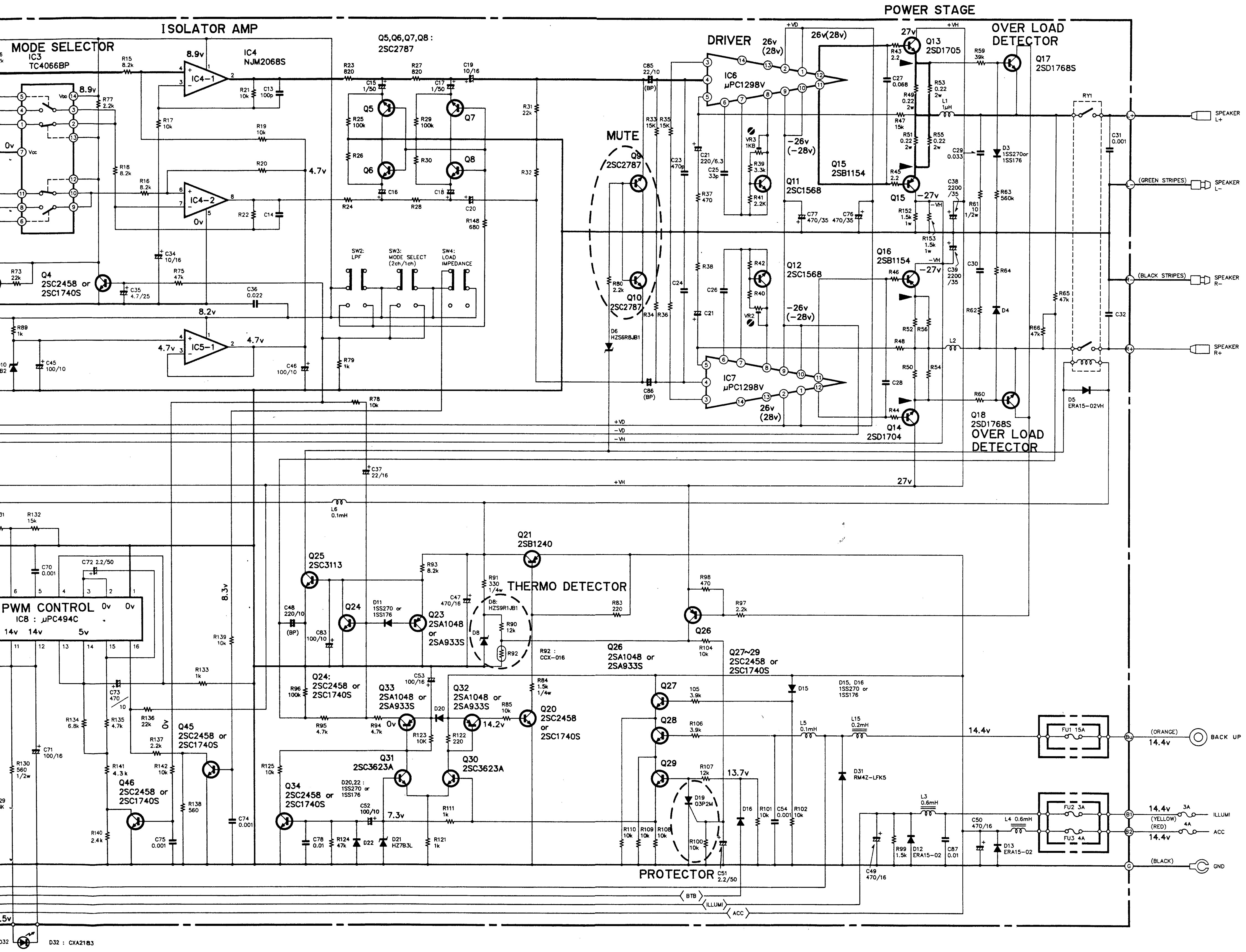
( ) WHEN MAXIMUM POWER OUTPUT

Fig. 20

8. SCHEMATIC CIRCUIT DIAGRAM (GM-2000/EW)


1
2
3
4
5
6
A
B
C
D
MAIN UNIT
BP INPUT DIN JACK
Lch
Rch
GND
ILLUMI
GND
ACC
BTB
14.4v
14.3v
14.4v
BUFFER AMP
IC2 NJM2068S
IC2-1
IC2-2
8.9v
0v
SW1 : LOW BOOST
SW1-1
SW1-2
VR1-1
VR1-2
D1,D2 : 1SS270 or 1SS176
MODE SELECTOR
IC3 TC4066BP
8.9v
0v
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
4.7v
Q3 2SC2458 or 2SC1740S
Q4 2SC2458 or 2SC1740S
Q5,Q6,Q7,Q8 : 2SC2787
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
Q22 2SD2037
8.9v
D7 HZS9R1JB1
D9 HZS4R7EB2
IC5-2
IC5-1
IC5: NJM4558S
D10 HZS4R7EB2
8.2v
D34 ERA15-02VH
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
DRIVER
IC6 μPC1298V
IC7 μPC1298V
26v (28v)
−26v (−28v)
Q11 2SC1568
Q12 2SC1568
Q15 2SB1154
+VD REGULATOR
Q36 2SD2037
−VD REGULATOR
Q35 2SB1357
D23, 24 : HZS4R3EB1
L13 CCG-081
L14 CCG-081
SW5 : BFC
PWM CONTROL
IC8 : μPC494C
14v
0v
5v
SWITCHING
Q37~40 : 2SK817
Q41,Q43 : 2SC3422
Q42,44 : 2SA1359
D29 RBV-402L
D25~28 : 1SS81
T1
D30 : ERZ-M10DK220
14.3v
8.3v
Q45 2SC2458 or 2SC1740S
Q46 2SC2458 or 2SC1740S
Q21 2SB1240
Q25 2SC3113
Q24
Q23 2SA1048 or 2SA933S
D11 1SS270 or 1SS176
THERMO DETECTOR
D8: HZS9R1JB1
R92 : CCX-016
Q24: 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
14.2v
Q31 2SC3623A
Q30 2SC3623A
D20,22 : 1SS270 or 1SS176
Q34 2SC2458 or 2SC1740S
D21 HZ7B3L
7.3v
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
D15, D16 1SS270 or 1SS176
D19 03P2M
13.7v
PROTECTOR
D31 RM4Z-LF
2.5v
D32 : CXA2183
+VD
−VD
+VH
−VH

( ) WHEN MAXIMUM POWER OUTPUT


4
5
6
7
8
9
A
B
C
D
POWER STAGE
ISOLATOR AMP
MODE SELECTOR
IC3
TC4066BP
IC4
NJM2068S
IC4-1
IC4-2
IC5-1
Q5,Q6,Q7,Q8 :
2SC2787
DRIVER
IC6
µPC1298V
IC7
µPC1298V
OVER LOAD
DETECTOR
Q13
2SD1705
Q14
2SD1704
Q15
2SB1154
Q16
2SB1154
Q11
2SC1568
Q12
2SC1568
Q17
2SD1768S
Q18
2SD1768S
MUTE
Q9
2SC2787
Q10
2SC2787
Q4
2SC2458 or
2SC1740S
SW2:
LPF
SW3:
MODE SELECT
(2ch/1ch)
SW4:
LOAD
IMPEDANCE
SPEAKER L+
SPEAKER L−
SPEAKER R−
SPEAKER R+
(GREEN STRIPES)
(BLACK STRIPES)
RY1
PWM CONTROL
IC8 : µPC494C
Q21
2SB1240
Q25
2SC3113
THERMO DETECTOR
Q23
2SA1048
or
2SA933S
Q24:
2SC2458 or
2SC1740S
Q26
2SA1048 or
2SA933S
Q27~29
2SC2458 or
2SC1740S
Q33
2SA1048 or
2SA933S
Q32
2SA1048 or
2SA933S
Q20
2SC2458
or
2SC1740S
Q31
2SC3623A
Q30
2SC3623A
Q34
2SC2458 or
2SC1740S
Q45
2SC2458 or
2SC1740S
Q46
2SC2458 or
2SC1740S
R92 :
CCX-016
D15, D16
1SS270 or
1SS176
PROTECTOR
FU1 15A
FU2 3A
FU3 4A
(ORANGE)
BACK UP
14.4v
(YELLOW)
ILLUMI
(RED)
ACC
(BLACK)
GND
BTB
D32 : CXA2183
+VD
−VD
−VH
+VH
27v
26v
(28v)
−26v
(−28v)
−27v
8.9v
8.2v
4.7v
14.2v
13.7v
7.3v
8.3v

SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF

SW2: LPF SWITCH .... ON-OFF

SW3: MODE SELECT SWITCH 1ch-2ch

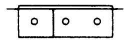
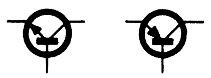
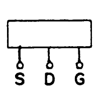
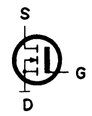
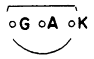
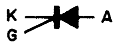
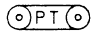
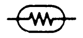
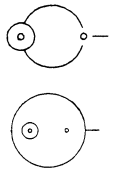
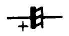
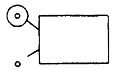
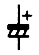
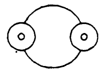
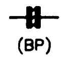
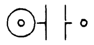
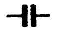
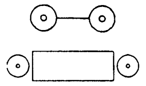
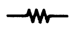
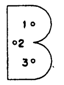
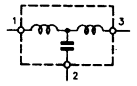
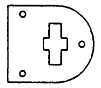
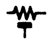
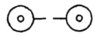
SW4: LOAD IMPEDANCE SWITCH 2Ω-4Ω

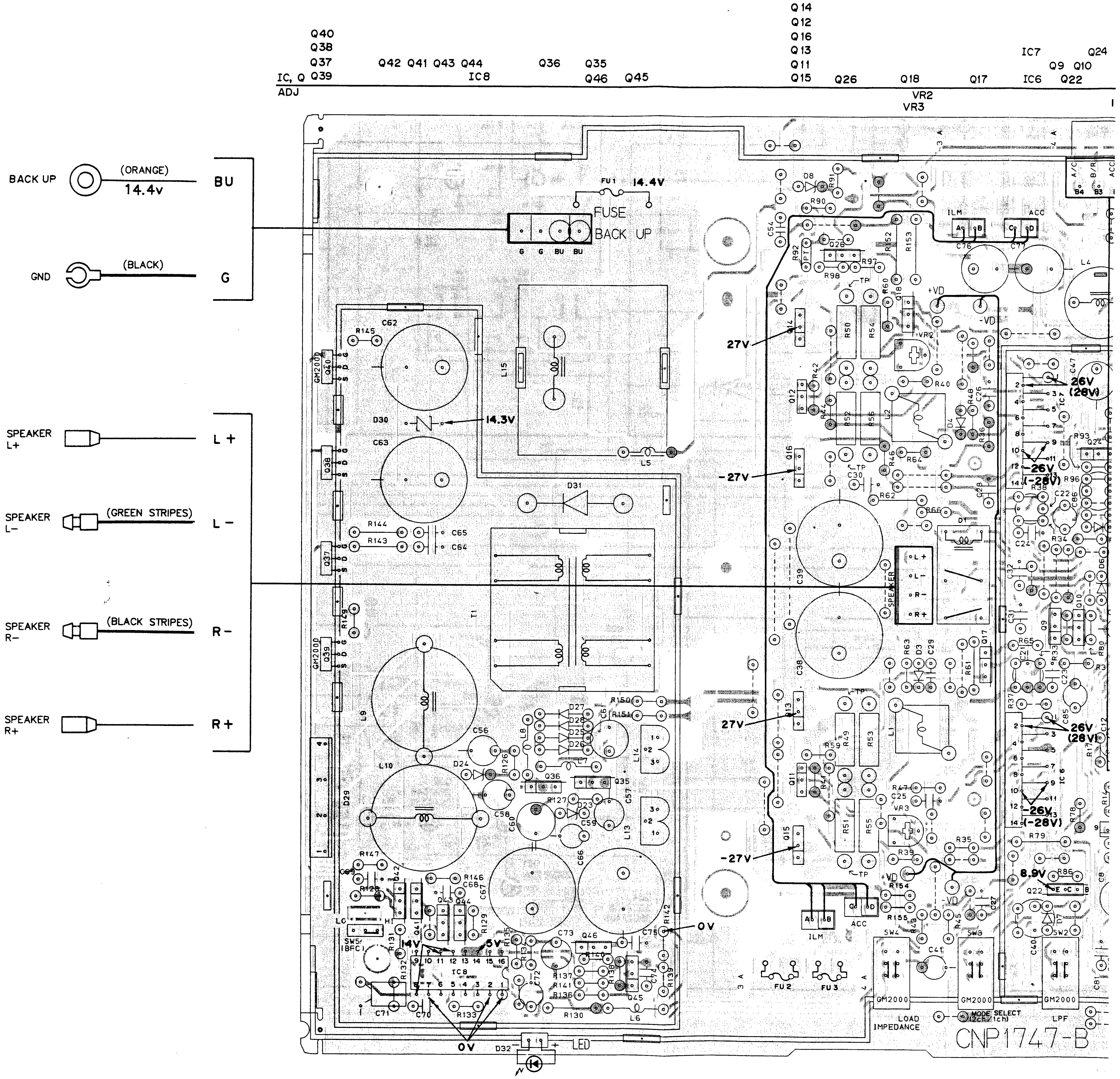
SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch position.

Fig. 21

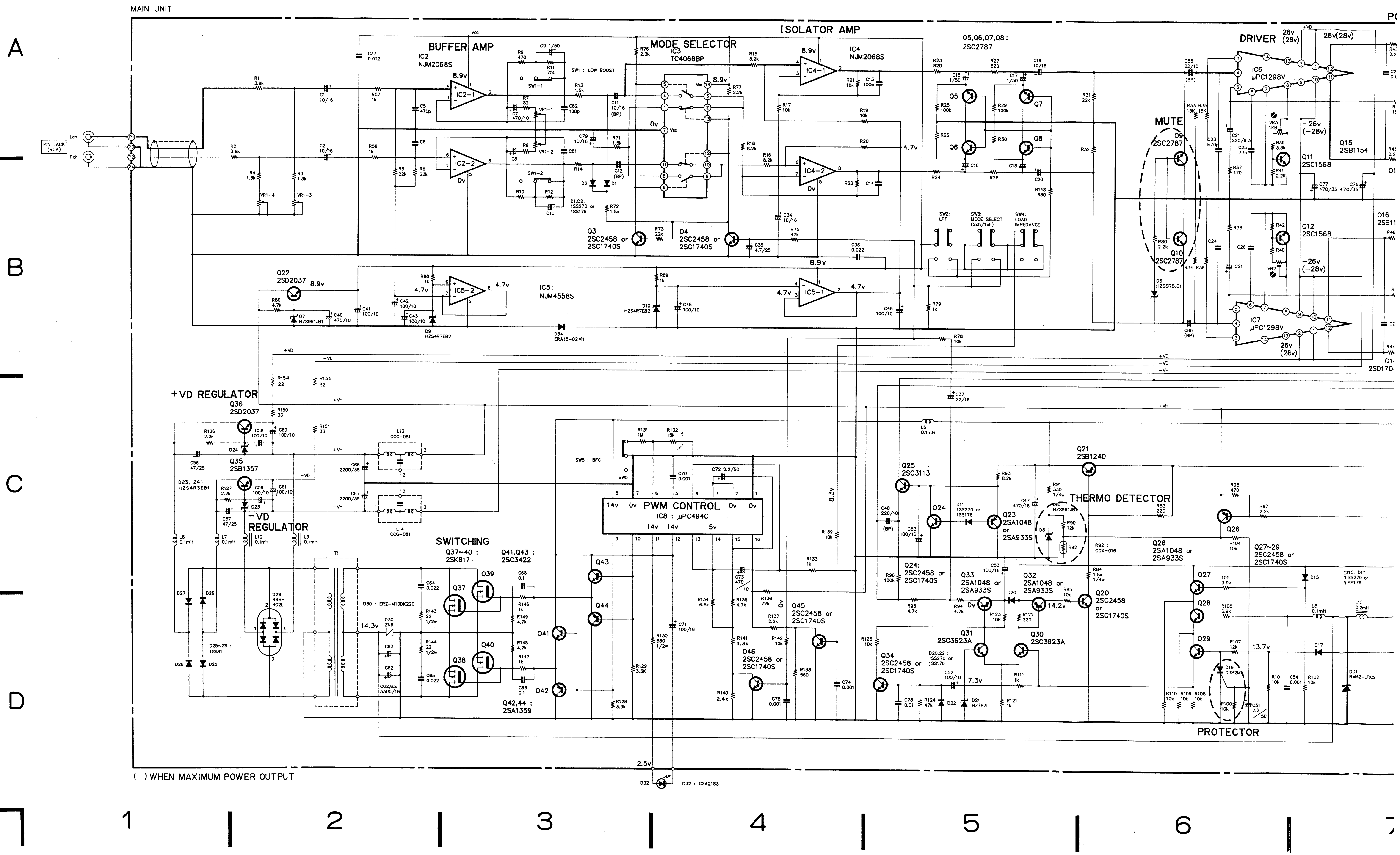
9. CONNECTION DIAGRAM (GM-2000/EW)

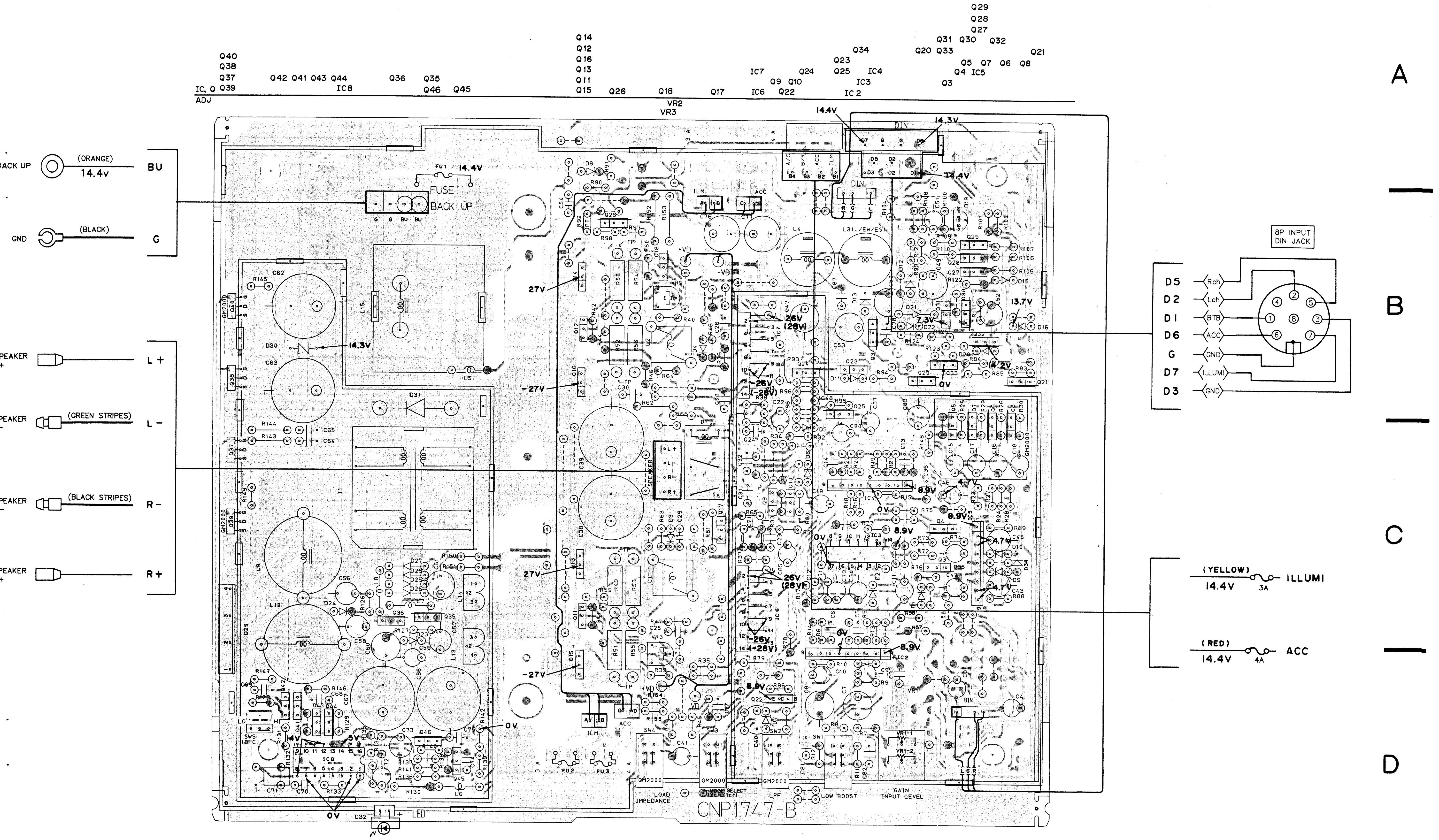
Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


IC, Q
ADJ
Q40
Q38
Q37
Q39
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q46
Q45
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q24
Q9 Q10
Q22
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1 14.4V
FUSE
BACK UP
14.3V
27V
−27V
27V
−27V
26V
(28V)
26V
(−28V)
26V
(28V)
26V
(−28V)
8.9V
0V
14V
5V
0V
ILM
ACC
SPEAKER
FU2
FU3
GM2000
LOAD IMPEDANCE
MODE SELECT
LPF
LED
D32
CNP1747-B

( ) WHEN MAXIMUM POWER OUTPUT

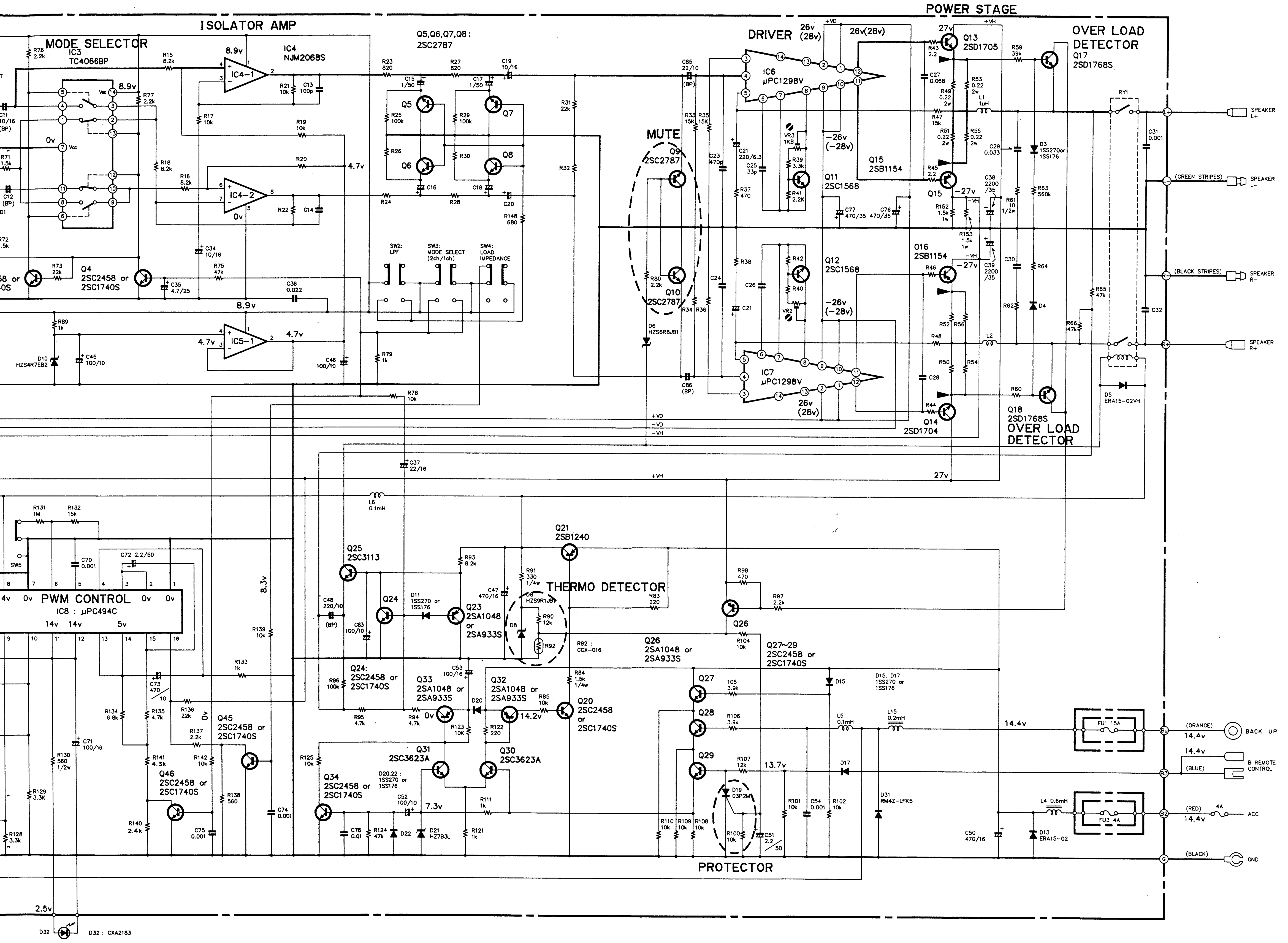
10. SCHEMATIC CIRCUIT DIAGRAM (GM-2000/UC)


MAIN UNIT
PIN JACK (RCA)
Lch
Rch
BUFFER AMP
IC2 NJM2068S
IC2-1
IC2-2
SW1 : LOW BOOST
SW1-1
SW1-2
VR1-1
VR1-2
VR1-3
VR1-4
MODE SELECTOR
IC3 TC4066BP
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
Q5,Q6,Q7,Q8 : 2SC2787
DRIVER
IC6 µPC1298V
IC7 µPC1298V
26v (28v)
-26v (-28v)
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q15 2SB1154
D6 HZS6R8JB1
D1,D2 : 1SS270 or 1SS176
Q3 2SC2458 or 2SC1740S
Q4 2SC2458 or 2SC1740S
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
Q22 2SD2037
IC5-1
IC5-2
IC5: NJM4558S
D7 HZS9R1JB1
D9 HZS4R7EB2
D10 HZS4R7EB2
D34 ERA15-02VH
8.9v
4.7v
+VD REGULATOR
Q36 2SD2037
Q35 2SB1357
D23, 24: HZS4R3EB1
-VD REGULATOR
L13 CCG-081
L14 CCG-081
SW5 : BFC
PWM CONTROL
IC8 : µPC494C
SWITCHING
Q37~40 : 2SK817
Q41,Q43 : 2SC3422
Q42,44 : 2SA1359
D30 : ERZ-M10DK220
D25~28 : 1SS81
D29 RBV-402L
T1
14.3v
Q25 2SC3113
Q24
Q24: 2SC2458 or 2SC1740S
Q23 2SA1048 or 2SA933S
Q21 2SB1240
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX-016
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
Q45 2SC2458 or 2SC1740S
Q46 2SC2458 or 2SC1740S
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
D15, D17 1SS270 or 1SS176
D31 RM4Z-LFK5
PROTECTOR
13.7v
14.2v
7.3v
8.3v
2.5v
D32 : CXA2183
( ) WHEN MAXIMUM POWER OUTPUT
A
B
C
D
1
2
3
4
5
6


IC, Q
ADJ
Q40
Q38
Q37
Q39
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q46
Q45
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q22
Q24
Q23
Q25
Q34
IC4
IC3
IC2
Q29
Q28
Q27
Q31 Q30 Q32
Q20 Q33
Q21
Q5 Q7 Q6 Q8
Q4 IC5
Q3
ACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
PEAKER
L +
(GREEN STRIPES)
L −
(BLACK STRIPES)
R −
R +
FU1 14.4V
FUSE
BACK UP
G G BU BU
14.3V
27V
−27V
27V
−27V
14.4V
14.3V
DIN
A/C B/R ACC ILM
ILM
ACC
SPEAKER
26V
(28V)
−26V
(−28V)
7.3V
13.7V
14.2V
0V
4.7V
8.9V
5V
14V
LOAD IMPEDANCE
MODE SELECT
LPF
LOW BOOST
GAIN
INPUT LEVEL
LED
CNP1747-B
8P INPUT DIN JACK
D5
Rch
D2
Lch
D1
BTB
D6
ACC
G
GND
D7
ILLUMI
D3
GND
(YELLOW)
14.4V
3A
ILLUMI
(RED)
14.4V
4A
ACC
4
5
6
7
8
9
A
B
C
D

( ) WHEN MAXIMUM POWER OUTPUT

Fig. 22

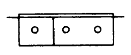
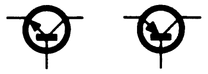
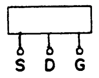
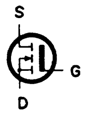
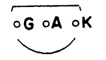
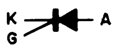
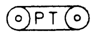
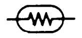
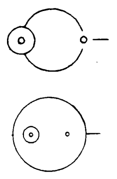
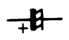
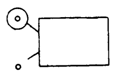
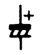
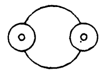
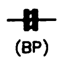
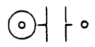
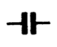
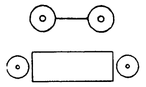
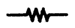
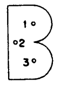
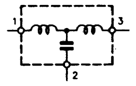
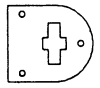
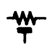
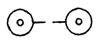

ISOLATOR AMP
MODE SELECTOR
IC3 TC4066BP
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
Q4 2SC2458 or 2SC1740S
Q5,Q6,Q7,Q8 : 2SC2787
SW2: LPF
SW3: MODE SELECT (2ch/1ch)
SW4: LOAD IMPEDANCE
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
D10 HZS4R7EB2
POWER STAGE
DRIVER
IC6 μPC1298V
IC7 μPC1298V
Q11 2SC1568
Q12 2SC1568
Q13 2SD1705
Q14 2SD1704
Q15 2SB1154
Q16 2SB1154
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
D3 1SS270 or 1SS176
D5 ERA15-02VH
RY1
SPEAKER L+
SPEAKER L−
SPEAKER R−
SPEAKER R+
(GREEN STRIPES)
(BLACK STRIPES)
26v (28v)
−26v (−28v)
27v
−27v
14.4v
PWM CONTROL
IC8 : μPC494C
SW5
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX-016
Q21 2SB1240
Q23 2SA1048 or 2SA933S
Q24: 2SC2458 or 2SC1740S
Q25 2SC3113
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q30 2SC3623A
Q31 2SC3623A
Q32 2SA1048 or 2SA933S
Q33 2SA1048 or 2SA933S
Q34 2SC2458 or 2SC1740S
Q45 2SC2458 or 2SC1740S
Q46 2SC2458 or 2SC1740S
Q20 2SC2458 or 2SC1740S
D11 1SS270 or 1SS176
D15, D17 1SS270 or 1SS176
D19 03P2M
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
D31 RM4Z-LFK5
D13 ERA15-02
D32 : CXA2183
FU1 15A
FU3 4A
L4 0.6mH
L5 0.1mH
L6 0.1mH
L15 0.2mH
(ORANGE)
BACK UP
(BLUE)
B REMOTE CONTROL
(RED)
ACC
(BLACK)
GND
PROTECTOR
4
5
6
7
8
9
A
B
C
D

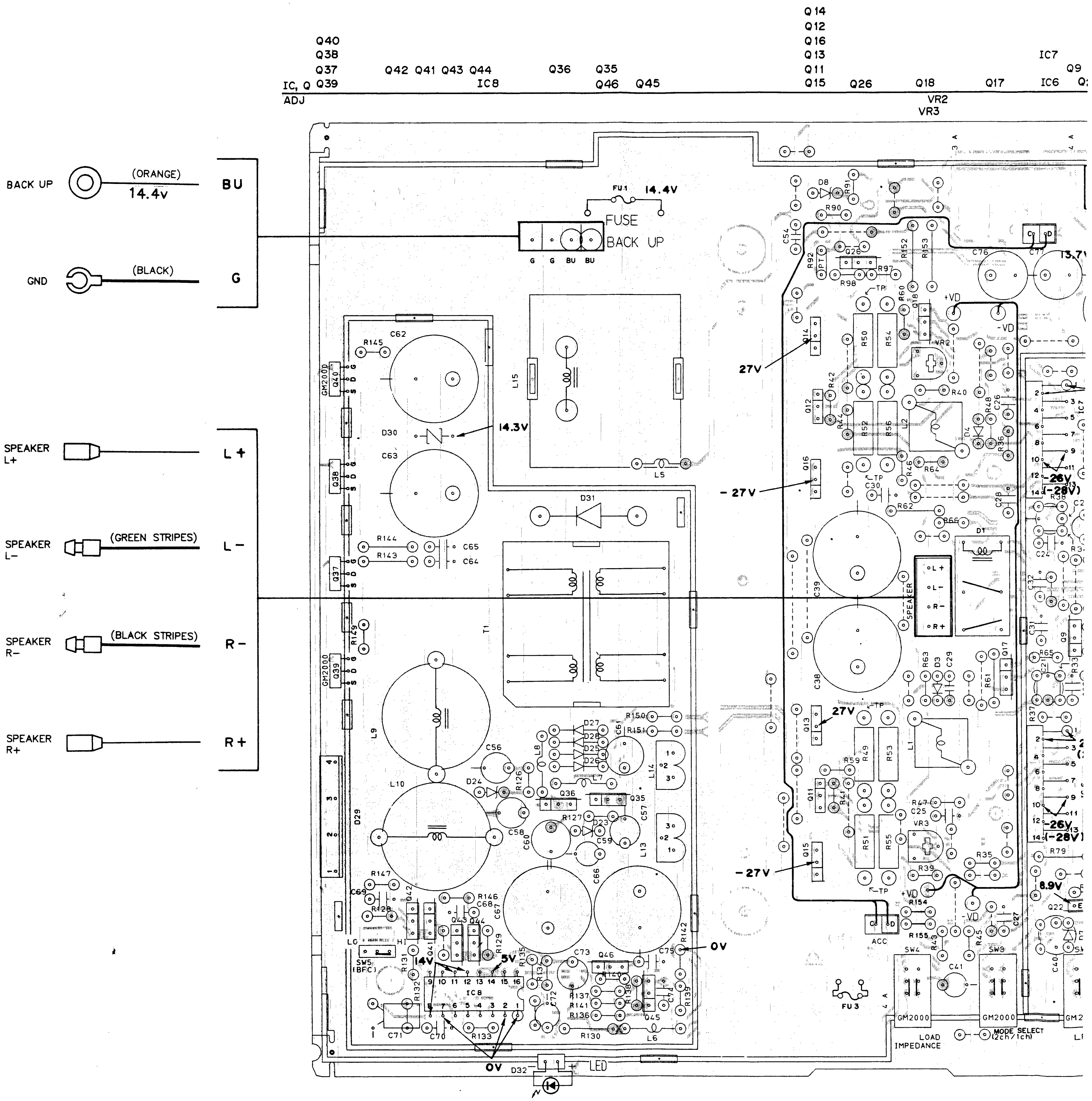
SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF
SW2: LPF SWITCH .... ON-OFF
SW3: MODE SELECT SWITCH 1ch-2ch
SW4: LOAD IMPEDANCE SWITCH 2Ω-4Ω
SW5: BFC SWITCH .... LOW-HIGH
The underlined indicates the switch position.

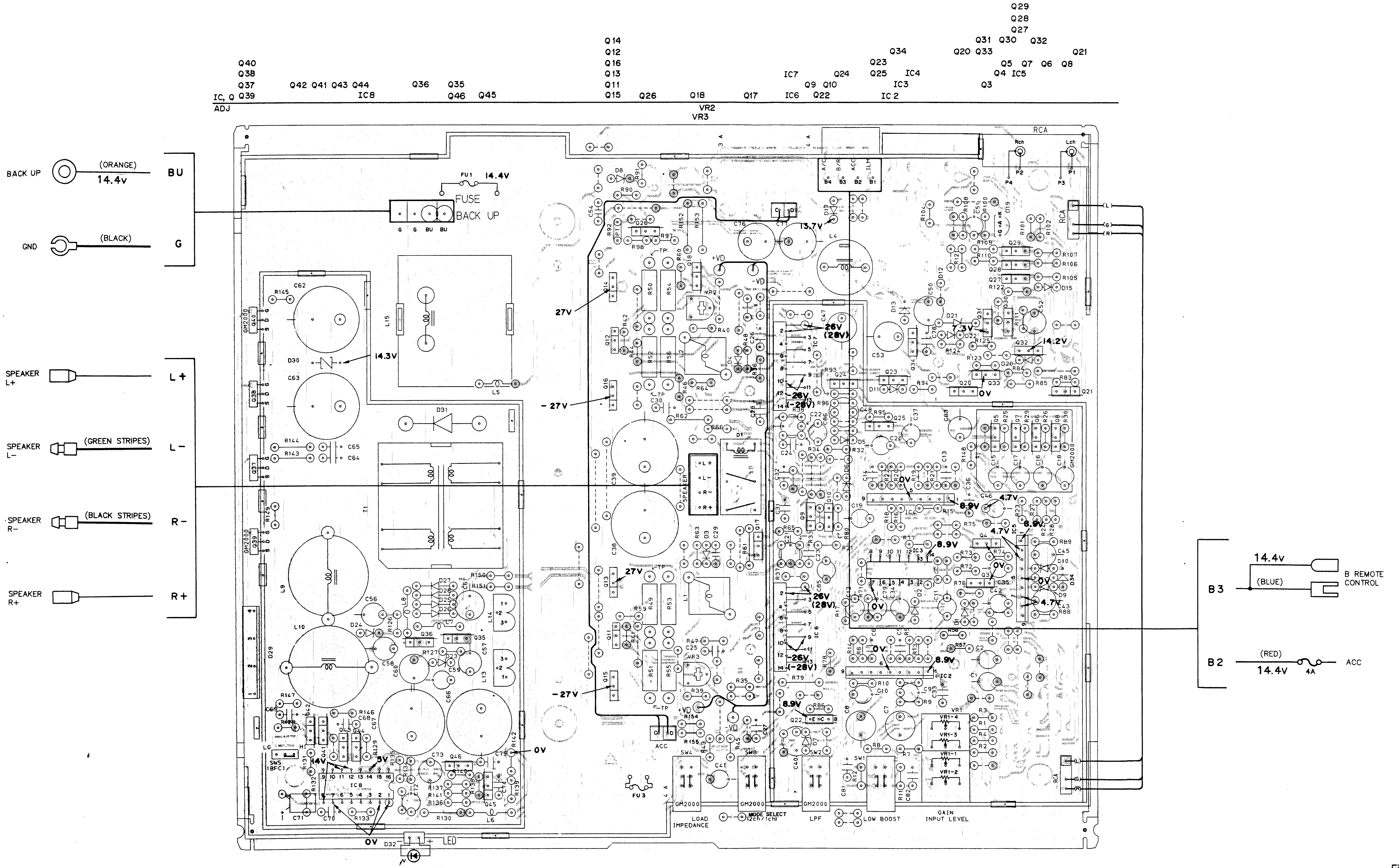
Fig. 23

11. CONNECTION DIAGRAM (GM-2000/UC)

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


BACK UP
(ORANGE)
14.4V
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
IC, Q
ADJ
Q40 Q38 Q37 Q39
Q42 Q41 Q43 Q44
IC8
Q36
Q35 Q46
Q45
Q14 Q12 Q16 Q13 Q11 Q15
Q26
Q18
VR2 VR3
Q17
IC7 IC6
Q9
FU1 14.4V
FUSE
BACK UP
14.3V
27V
−27V
26V
(−28V)
13.7V
8.9V
14V
5V
0V
LED
D32
ACC
FU3
LOAD IMPEDANCE
MODE SELECT (2ch/1ch)
GM2000
SW4
SW3
SW5 (BFC)
LO
HI
SPEAKER

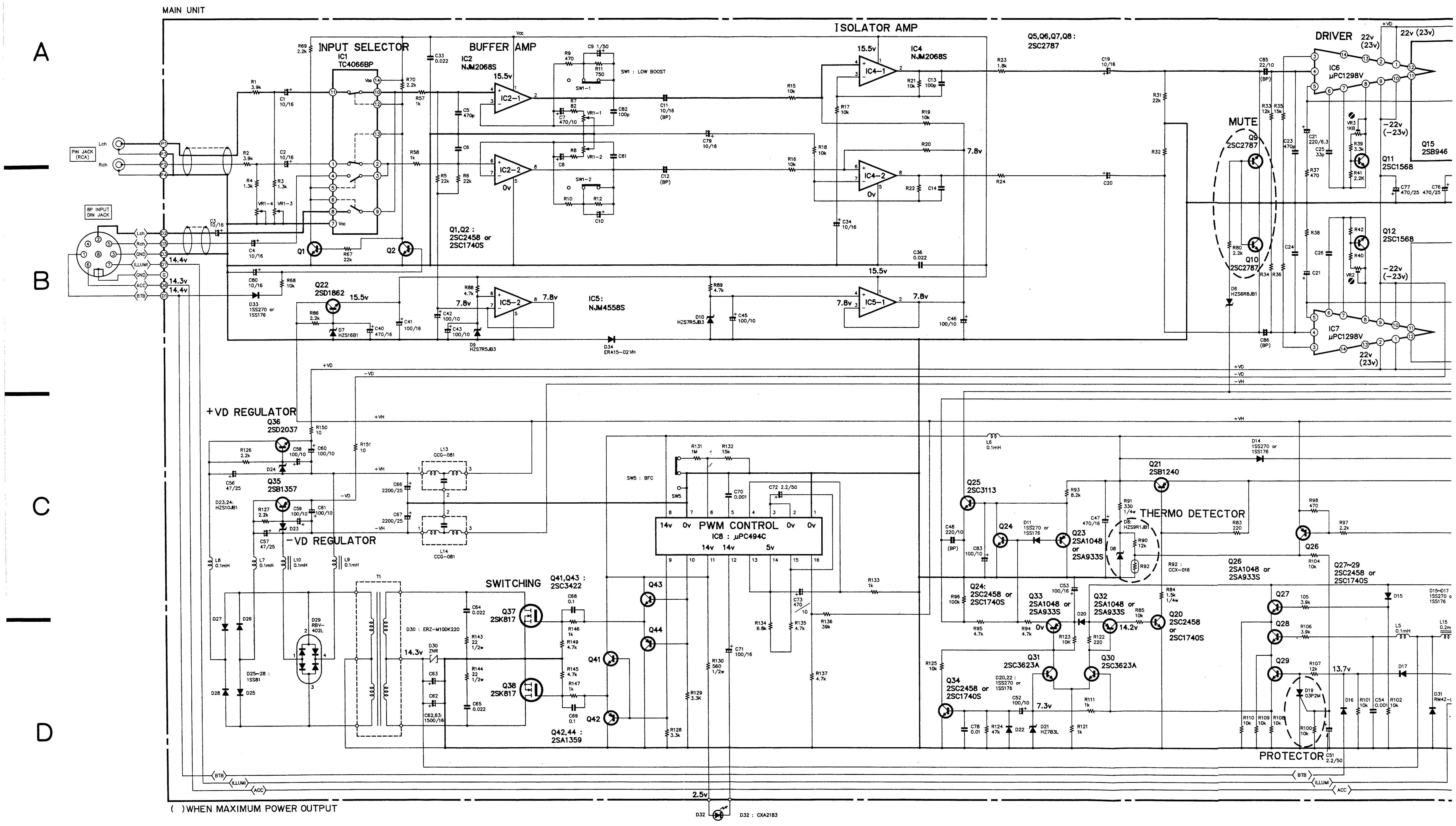
( ) WHEN MAXIMUM POWER OUTPUT


IC, Q
ADJ
Q40
Q38
Q37
Q39
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q46
Q45
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q22
Q24
Q34
Q23
Q25
IC4
IC3
IC 2
Q29
Q28
Q27
Q31 Q30 Q32
Q20 Q33
Q21
Q5 Q7 Q6 Q8
Q4 IC5
Q3
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1 14.4V
FUSE
BACK UP
G G BU BU
14.3V
27V
−27V
13.7V
26V (28V)
−26V (−28V)
7.3V
14.2V
0V
8.9V
4.7V
14V
5V
RCA
Rch
Lch
SPEAKER
ACC
LOAD IMPEDANCE
MODE SELECT (2ch/1ch)
LPF
LOW BOOST
GAIN INPUT LEVEL
LED
FU3
B3
14.4v
(BLUE)
B REMOTE CONTROL
B2
(RED)
14.4v
4A
ACC

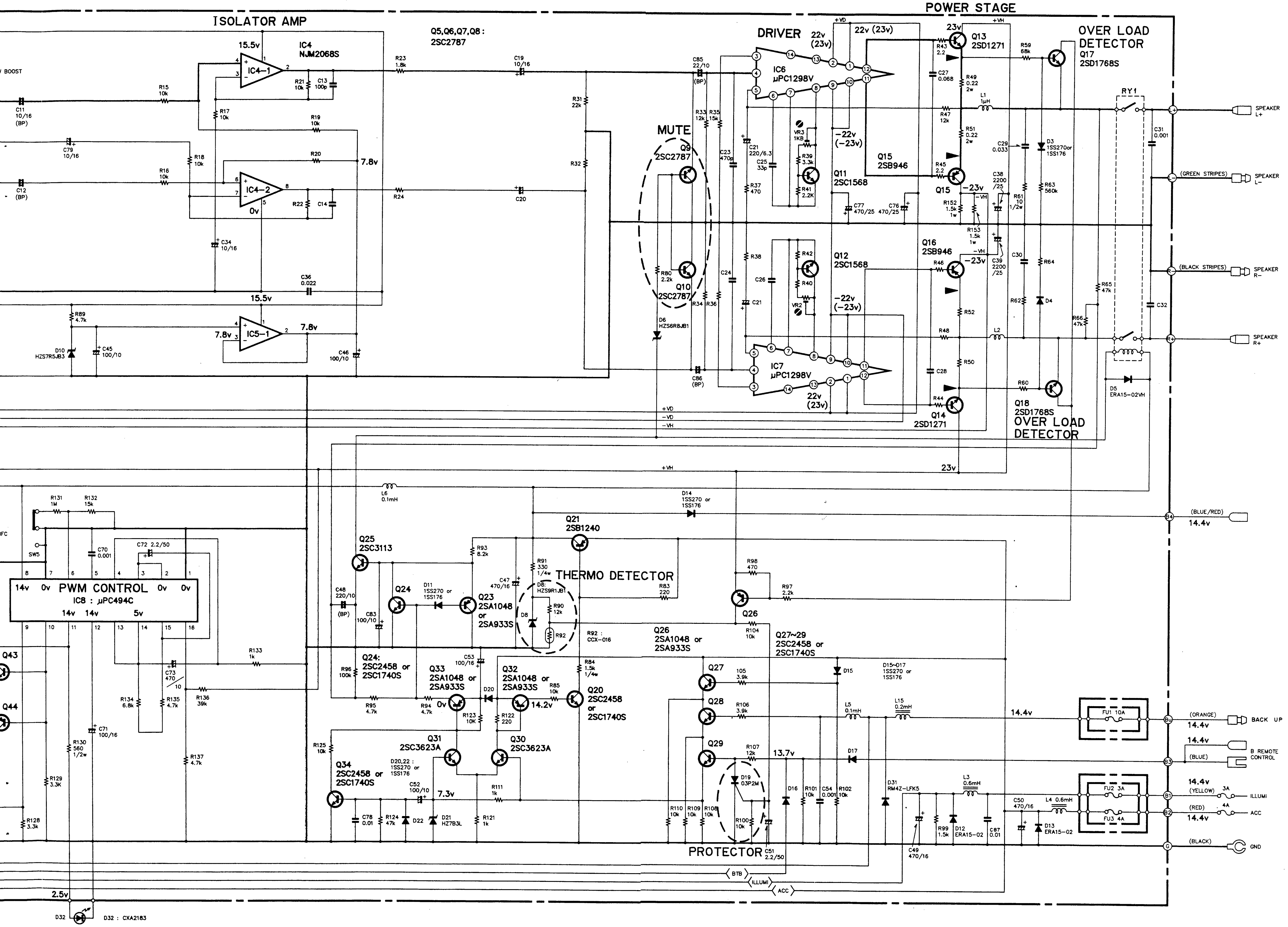
( ) WHEN MAXIMUM POWER OUTPUT

Fig. 24

12. SCHEMATIC CIRCUIT DIAGRAM (GM-1000/ES)


1
2
3
4
5
6
A
B
C
D
MAIN UNIT
INPUT SELECTOR
IC1
TC4066BP
BUFFER AMP
IC2
NJM2068S
ISOLATOR AMP
IC4
NJM2068S
Q5,Q6,Q7,Q8 :
2SC2787
DRIVER
IC6
μPC1298V
IC7
μPC1298V
22v
(23v)
−22v
(−23v)
MUTE
Q9
2SC2787
Q10
2SC2787
Q11
2SC1568
Q12
2SC1568
Q15
2SB946
PIN JACK
(RCA)
Lch
Rch
BP INPUT
DIN JACK
ILLUMI
ACC
BTB
GND
Q1,Q2 :
2SC2458 or
2SC1740S
Q22
2SD1862
IC5:
NJM4558S
15.5v
7.8v
14.4v
14.3v
SW1 : LOW BOOST
SW5 : BFC
+VD REGULATOR
Q36
2SD2037
Q35
2SB1357
−VD REGULATOR
D23,24:
HZS10JB1
L13
CCG-081
L14
CCG-081
SWITCHING
Q41,Q43 :
2SC3422
Q37
2SK817
Q38
2SK817
Q42,44 :
2SA1359
D29
RBV-402L
D25~28 :
1SS81
T1
D30 : ERZ-M10DK220
PWM CONTROL
IC8 : μPC494C
Q21
2SB1240
THERMO DETECTOR
Q25
2SC3113
Q23
2SA1048
or
2SA933S
Q24:
2SC2458 or
2SC1740S
Q33
2SA1048 or
2SA933S
Q32
2SA1048 or
2SA933S
Q20
2SC2458
or
2SC1740S
Q31
2SC3623A
Q30
2SC3623A
Q34
2SC2458 or
2SC1740S
D20,22 :
1SS270 or
1SS176
D21
HZ7B3L
R92 :
CCX-016
Q26
2SA1048 or
2SA933S
Q27~29
2SC2458 or
2SC1740S
D19
03P2M
D15~D17
1SS270 or
1SS176
PROTECTOR
13.7v
2.5v
D32
D32 : CXA2183
+VD
−VD
+VH
−VH

( )WHEN MAXIMUM POWER OUTPUT

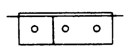
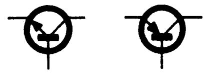
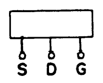
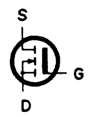
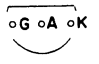
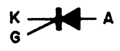
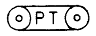
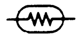
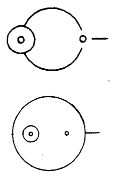
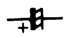
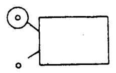
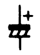
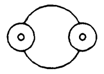
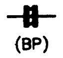
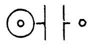
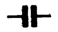
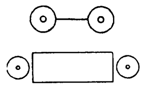
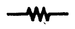
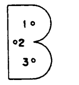
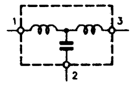
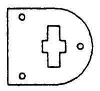
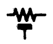
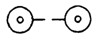

4
5
6
7
8
9
A
B
C
D
ISOLATOR AMP
IC4 NJM2068S
IC4–1
IC4–2
IC5–1
15.5v
7.8v
0v
LOW BOOST
Q5,Q6,Q7,Q8 : 2SC2787
POWER STAGE
DRIVER
IC6 µPC1298V
IC7 µPC1298V
22v (23v)
–22v (–23v)
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
Q11 2SC1568
Q12 2SC1568
Q13 2SD1271
Q14 2SD1271
Q15 2SB946
Q16 2SB946
23v
–23v
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
RY1
D3 1SS270 or 1SS176
D5 ERA15–02VH
SPEAKER L+
SPEAKER L–
SPEAKER R–
SPEAKER R+
(GREEN STRIPES)
(BLACK STRIPES)
+VD
–VD
–VH
+VH
PWM CONTROL
IC8 : µPC494C
14v
5v
SW5
BFC
Q43
Q44
Q21 2SB1240
Q25 2SC3113
Q24
Q23 2SA1048 or 2SA933S
D11 1SS270 or 1SS176
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX–016
Q24: 2SC2458 or 2SC1740S
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
14.2v
7.3v
D14 1SS270 or 1SS176
D15–D17 1SS270 or 1SS176
D19 03P2M
PROTECTOR
D31 RM4Z–LFK5
D12 ERA15–02
D13 ERA15–02
L6 0.1mH
L5 0.1mH
L15 0.2mH
L3 0.6mH
L4 0.6mH
14.4v
13.7v
FU1 10A
FU2 3A
FU3 4A
(BLUE/RED)
(ORANGE)
BACK UP
(BLUE)
B REMOTE CONTROL
(YELLOW)
ILLUMI
(RED)
ACC
(BLACK)
GND
BTB
2.5v
D32 : CXA2183

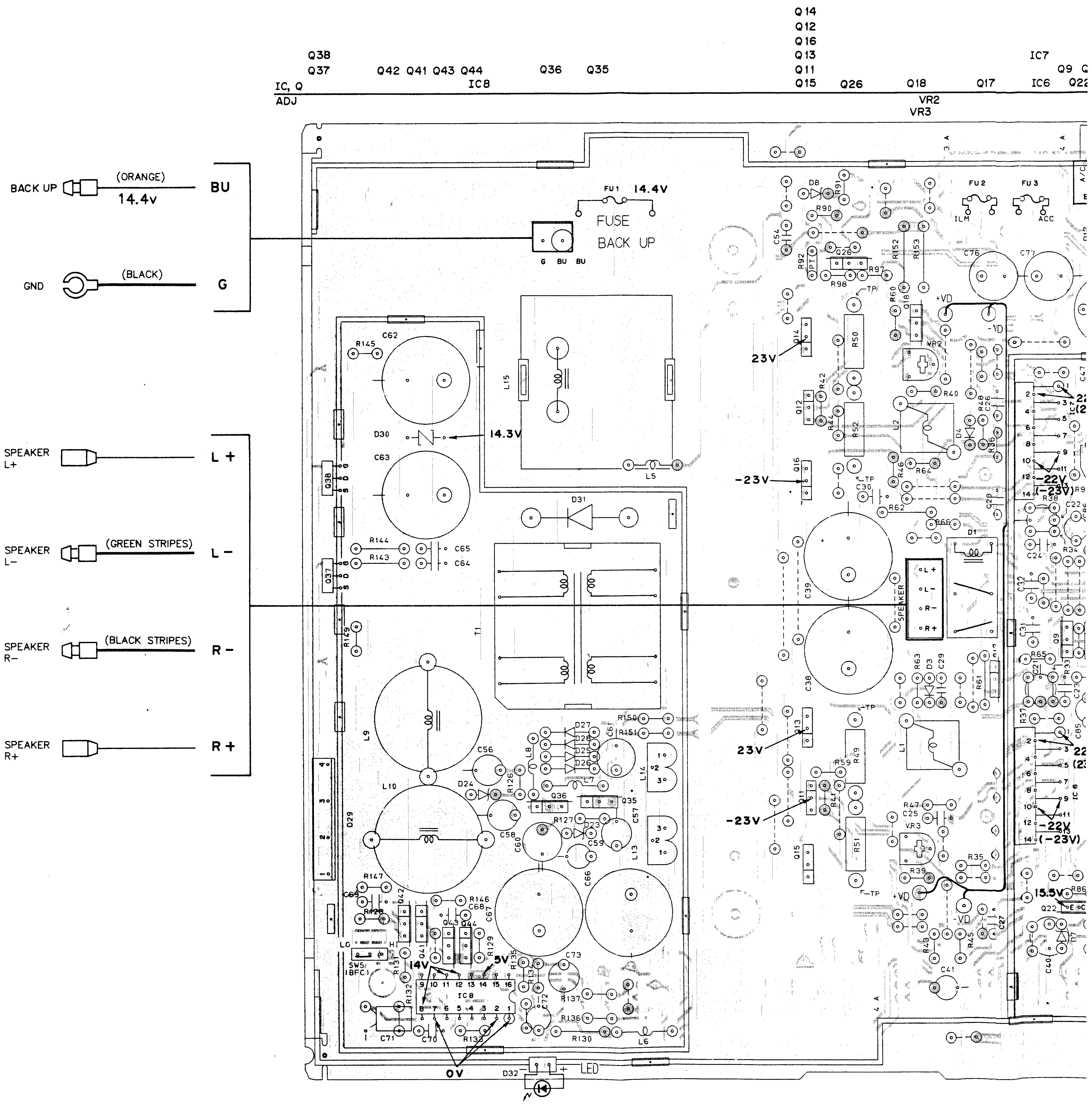
SWITCHES

SW1: LOW BOOST SWITCH .... ON-OFF
SW5: BFC SWITCH .... LOW-HIGH
The underlined indicates the switch positon.

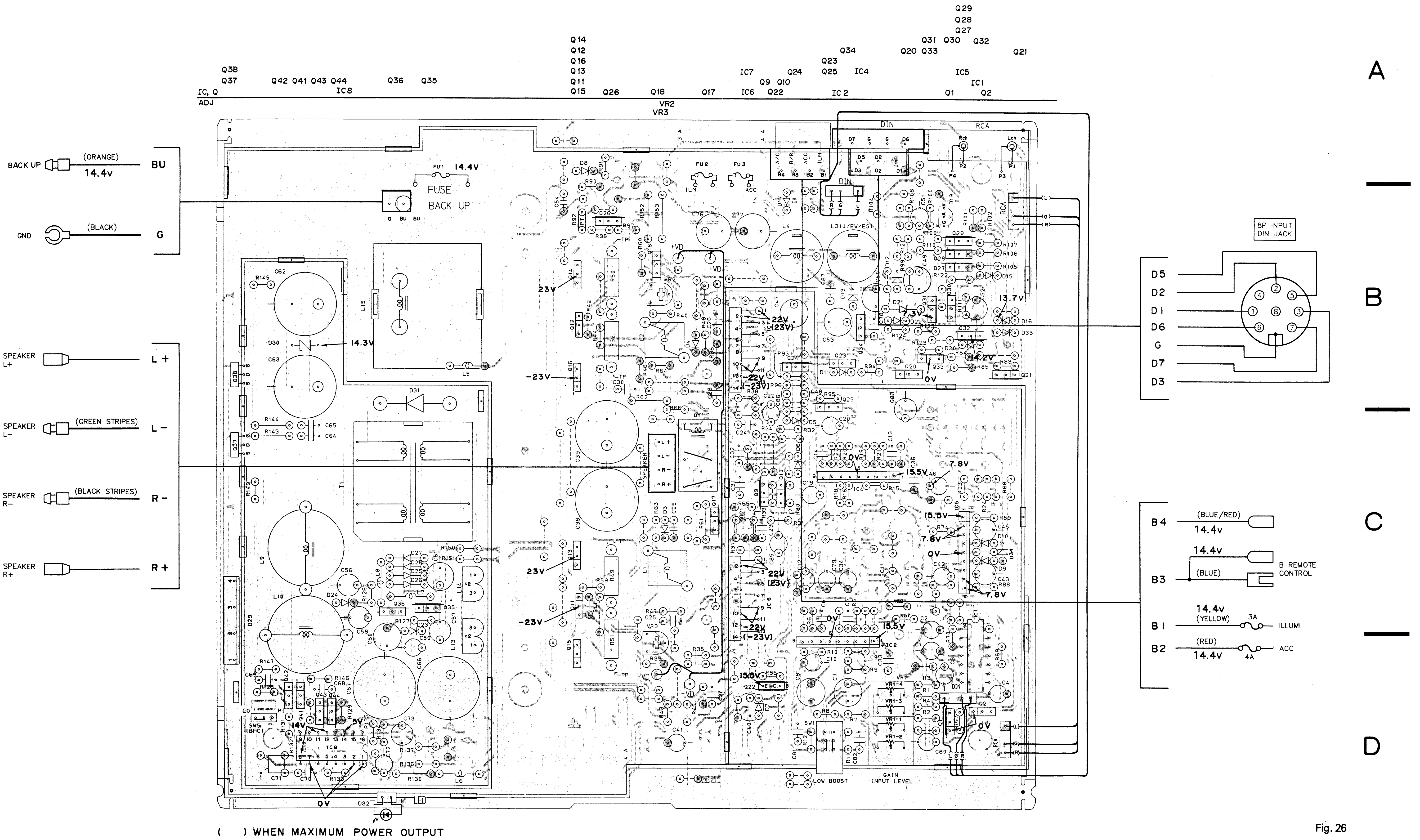
Fig. 25

13. CONNECTION DIAGRAM (GM-1000/ES)

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


IC, Q
ADJ
Q38 Q37
Q42 Q41 Q43 Q44
IC8
Q36 Q35
Q14 Q12 Q16 Q13 Q11 Q15
Q26
Q18
VR2 VR3
Q17
IC7
IC6
Q9
Q22
BACK UP
(ORANGE)
14.4V
BU
GND
(BLACK)
G
FU1 14.4V
FUSE
BACK UP
G BU BU
FU2
FU3
ILM
ACC
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
14.3V
23V
−23V
22V (23V)
−22V (−23V)
+VD
−VD
TP
15.5V
14V
5V
0V
LED
D32
SW5 (BFC)
T1
L9
L10
L15
D30
D31
C62
C63
C39
C38

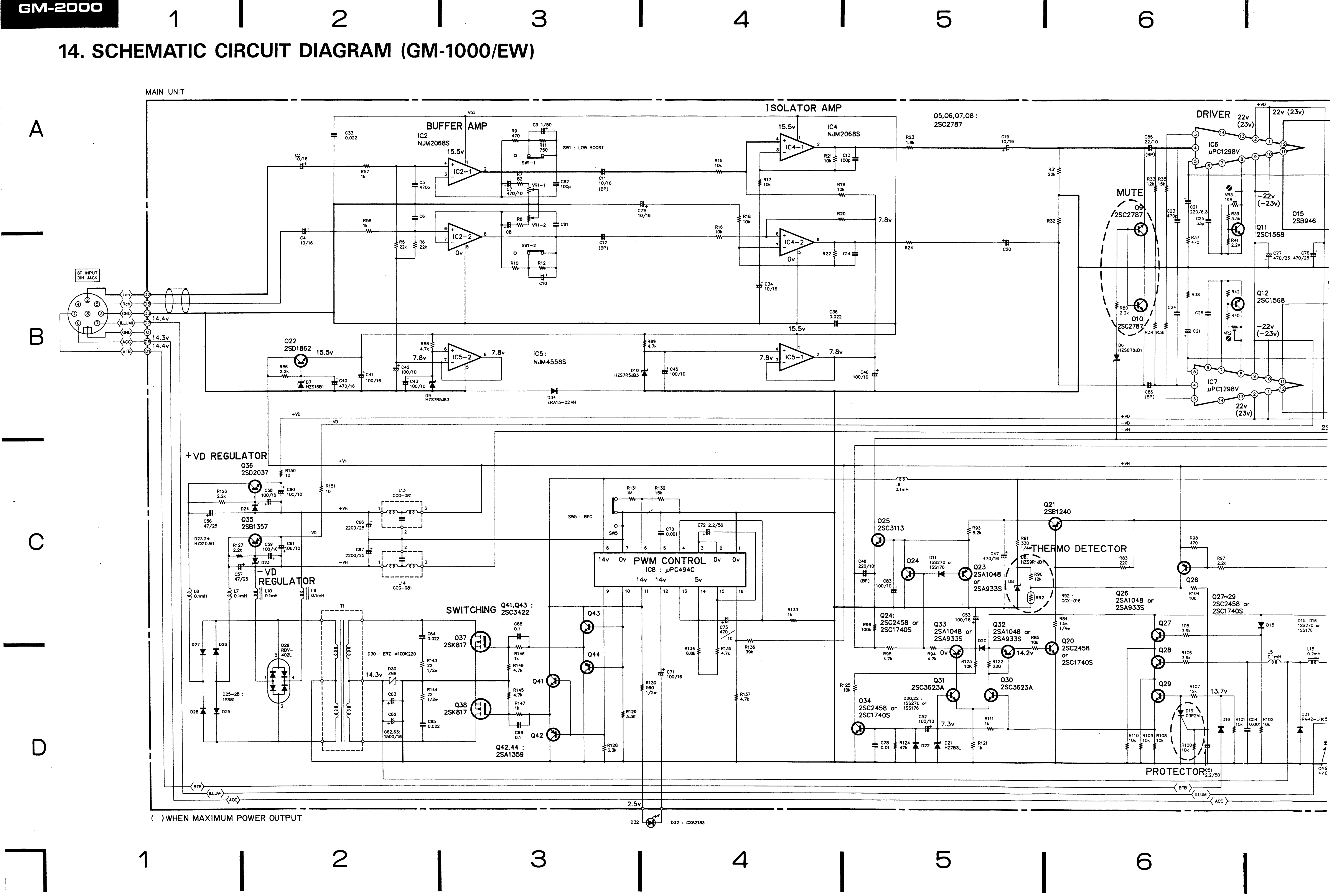
( ) WHEN MAXIMUM POWER OUTPUT

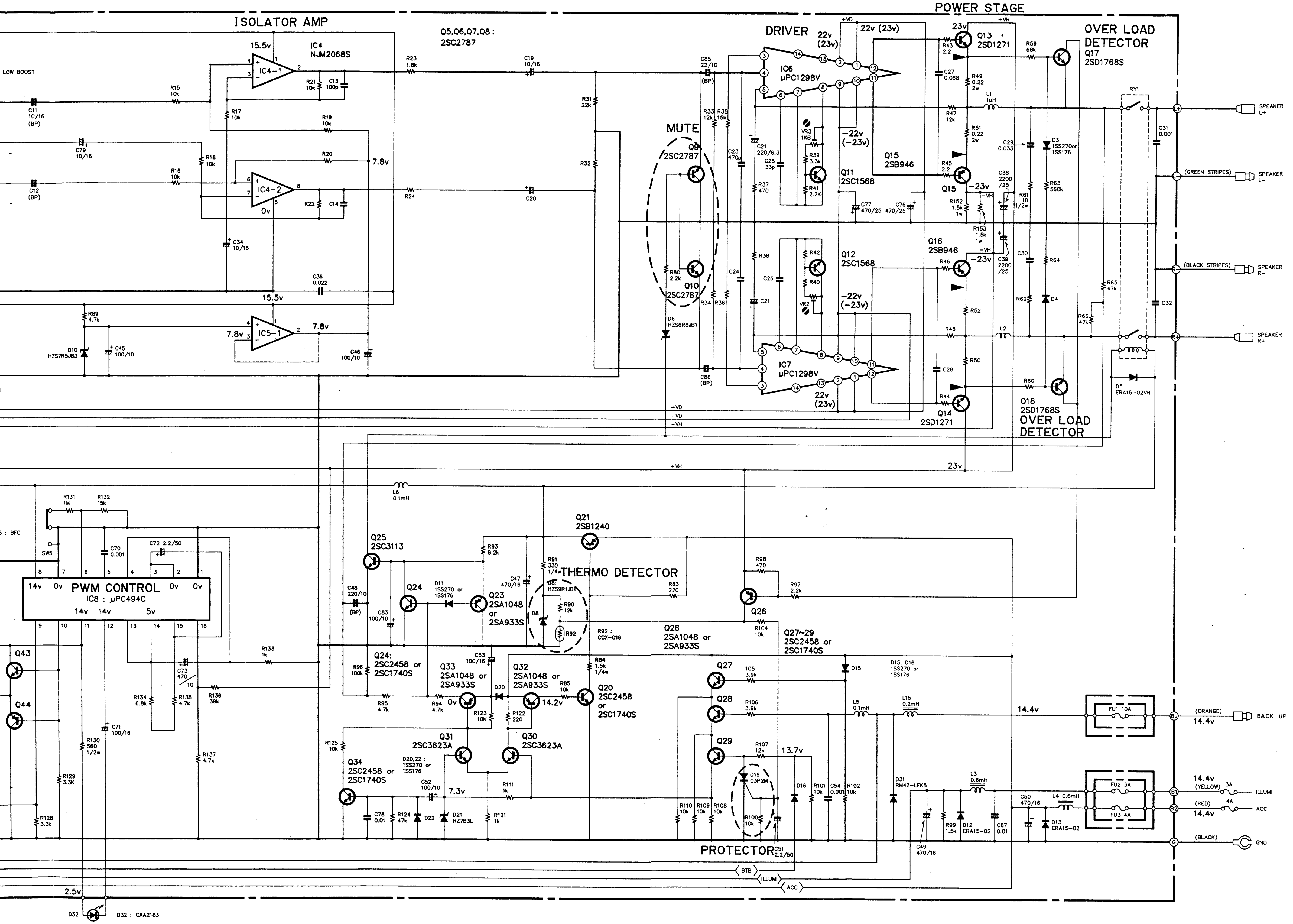

IC, Q
ADJ
Q38
Q37
Q42 Q41 Q43 Q44
IC8
Q36 Q35
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q22
Q24
Q23
Q25
Q34
IC4
IC2
Q31 Q30
Q20 Q33
Q29
Q28
Q27
Q32
Q21
IC5
IC1
Q1
Q2
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
FUSE
BACK UP
FU1 14.4V
FU2
FU3
DIN
RCA
SPEAKER L+
L +
SPEAKER L−
(GREEN STRIPES)
L −
SPEAKER R−
(BLACK STRIPES)
R −
SPEAKER R+
R +
14.3V
23V
−23V
22V (23V)
−22V (−23V)
0V
15.5V
7.8V
7.3V
13.7V
4.2V
14V
5V
LOW BOOST
GAIN
INPUT LEVEL
LED
8P INPUT DIN JACK
D5
D2
D1
D6
G
D7
D3
B4
(BLUE/RED)
14.4v
B REMOTE CONTROL
(BLUE)
B3
B1
(YELLOW)
3A
ILLUMI
B2
(RED)
4A
ACC
A
B
C
D

( ) WHEN MAXIMUM POWER OUTPUT

Fig. 26

14. SCHEMATIC CIRCUIT DIAGRAM (GM-1000/EW)


1
2
3
4
5
6
A
B
C
D
MAIN UNIT
BP INPUT DIN JACK
Lch
Rch
GND
ILLUMI
ACC
BTB
14.4v
14.3v
BUFFER AMP
IC2 NJM2068S
IC2-1
IC2-2
15.5v
0v
SW1 : LOW BOOST
SW1-1
SW1-2
VR1-1
VR1-2
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
7.8v
Q5,Q6,Q7,Q8 : 2SC2787
Q22 2SD1862
IC5: NJM4558S
IC5-1
IC5-2
D7 HZS16B1
D9 HZS7R5JB3
D10 HZS7R5JB3
D34 ERA15-02VH
DRIVER
IC6 μPC1298V
IC7 μPC1298V
22v (23v)
-22v (-23v)
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
Q11 2SC1568
Q12 2SC1568
Q15 2SB946
+VD
-VD
+VH
-VH
+VD REGULATOR
Q36 2SD2037
Q35 2SB1357
D23,24: HZS10JB1
-VD REGULATOR
L13 CCG-081
L14 CCG-081
D29 RBV-402L
D25~28 : 1SS81
T1
SWITCHING
Q41,Q43 : 2SC3422
Q37 2SK817
Q38 2SK817
Q42,44 : 2SA1359
D30 : ERZ-M10DK220
D30 ZNR
14.3v
SW5 : BFC
SW5
PWM CONTROL
IC8 : μPC494C
14v
0v
5v
2.5v
D32
D32 : CXA2183
L6 0.1mH
Q25 2SC3113
Q24
D11 1SS270 or 1SS176
Q23 2SA1048 or 2SA933S
Q21 2SB1240
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX-016
Q26
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q24: 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
14.2v
Q31 2SC3623A
Q30 2SC3623A
D20,22 : 1SS270 or 1SS176
Q34 2SC2458 or 2SC1740S
7.3v
D21 HZ7B3L
Q27
Q28
Q29
D15, D16 1SS270 or 1SS176
L5 0.1mH
L15 0.2mH
13.7v
D19 03P2M
PROTECTOR
C51 2.2/50
D31 RM4Z-LFK5
( )WHEN MAXIMUM POWER OUTPUT


ISOLATOR AMP
LOW BOOST
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
15.5v
7.8v
0v
Q5,Q6,Q7,Q8 : 2SC2787
POWER STAGE
DRIVER
IC6 μPC1298V
IC7 μPC1298V
22v (23v)
-22v (-23v)
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q13 2SD1271
Q14 2SD1271
Q15 2SB946
Q16 2SB946
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
RY1
SPEAKER L+
(GREEN STRIPES) SPEAKER L-
(BLACK STRIPES) SPEAKER R-
SPEAKER R+
D5 ERA15-02VH
+VD
-VD
-VH
+VH
23v
PWM CONTROL
IC8 : μPC494C
SW5
BFC
Q25 2SC3113
Q24
Q23 2SA1048 or 2SA933S
Q21 2SB1240
THERMO DETECTOR
R92 : CCX-016
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q24: 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
Q43
Q44
D15, D16 1SS270 or 1SS176
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
D19 D3P2M
D31 RM4Z-LFK5
PROTECTOR
13.7v
14.2v
7.3v
14.4v
FU1 10A
FU2 3A
FU3 4A
(ORANGE) BACK UP
(YELLOW) ILLUMI
(RED) ACC
(BLACK) GND
BTB
ILLUMI
ACC
2.5v
D32 : CXA2183

SWITCHES

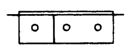
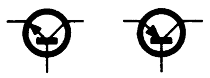
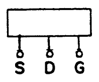
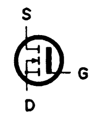
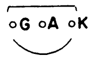
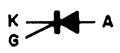
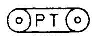
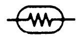
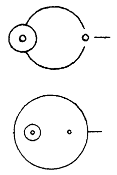
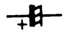
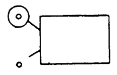
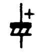
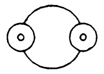
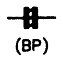
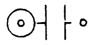
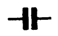
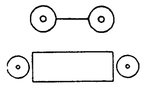
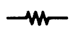
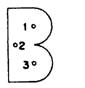
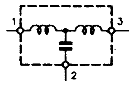
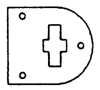
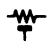
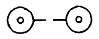
SW1: LOW BOOST SWITCH .... ON-OFF

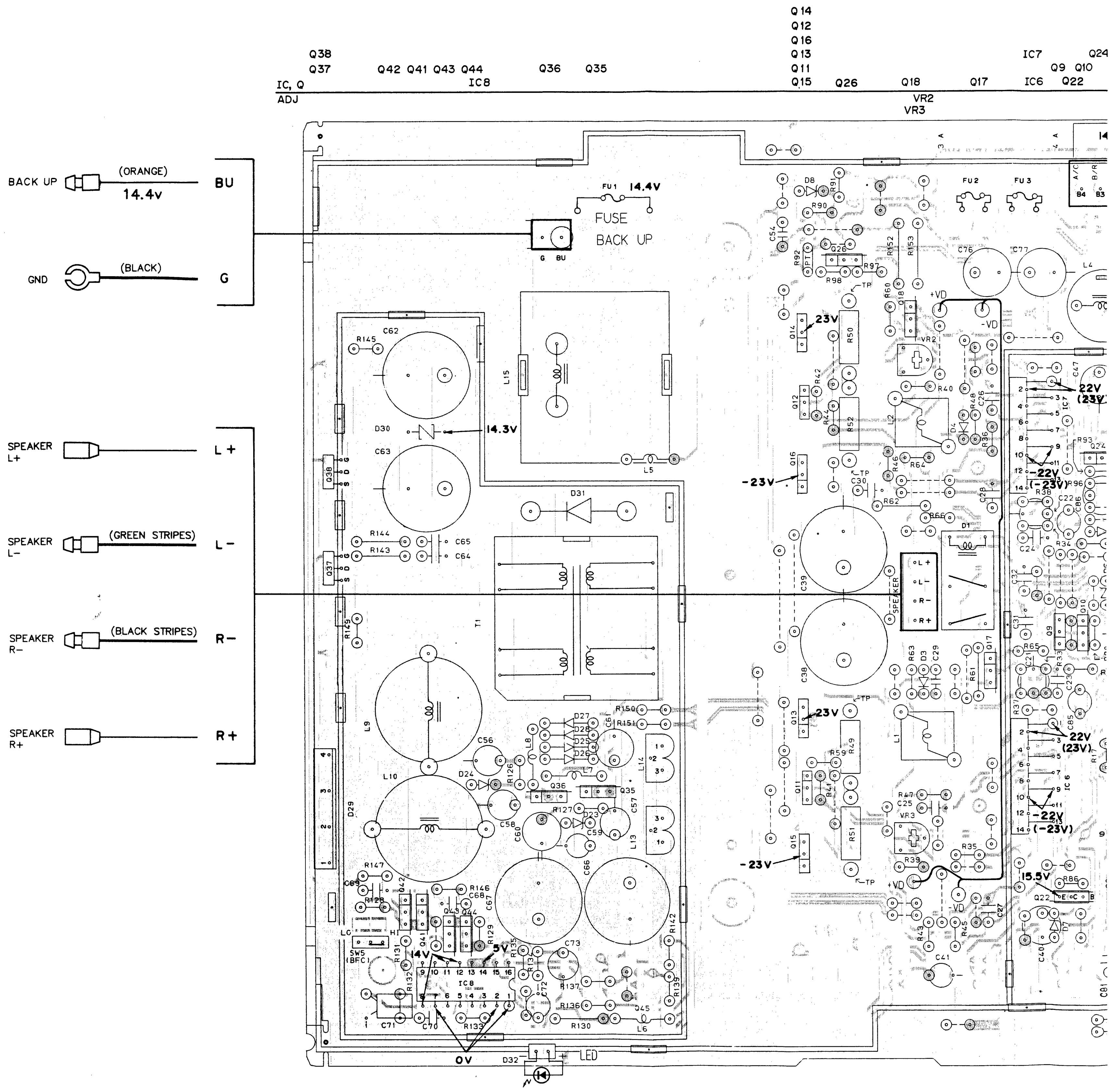
SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch positon.

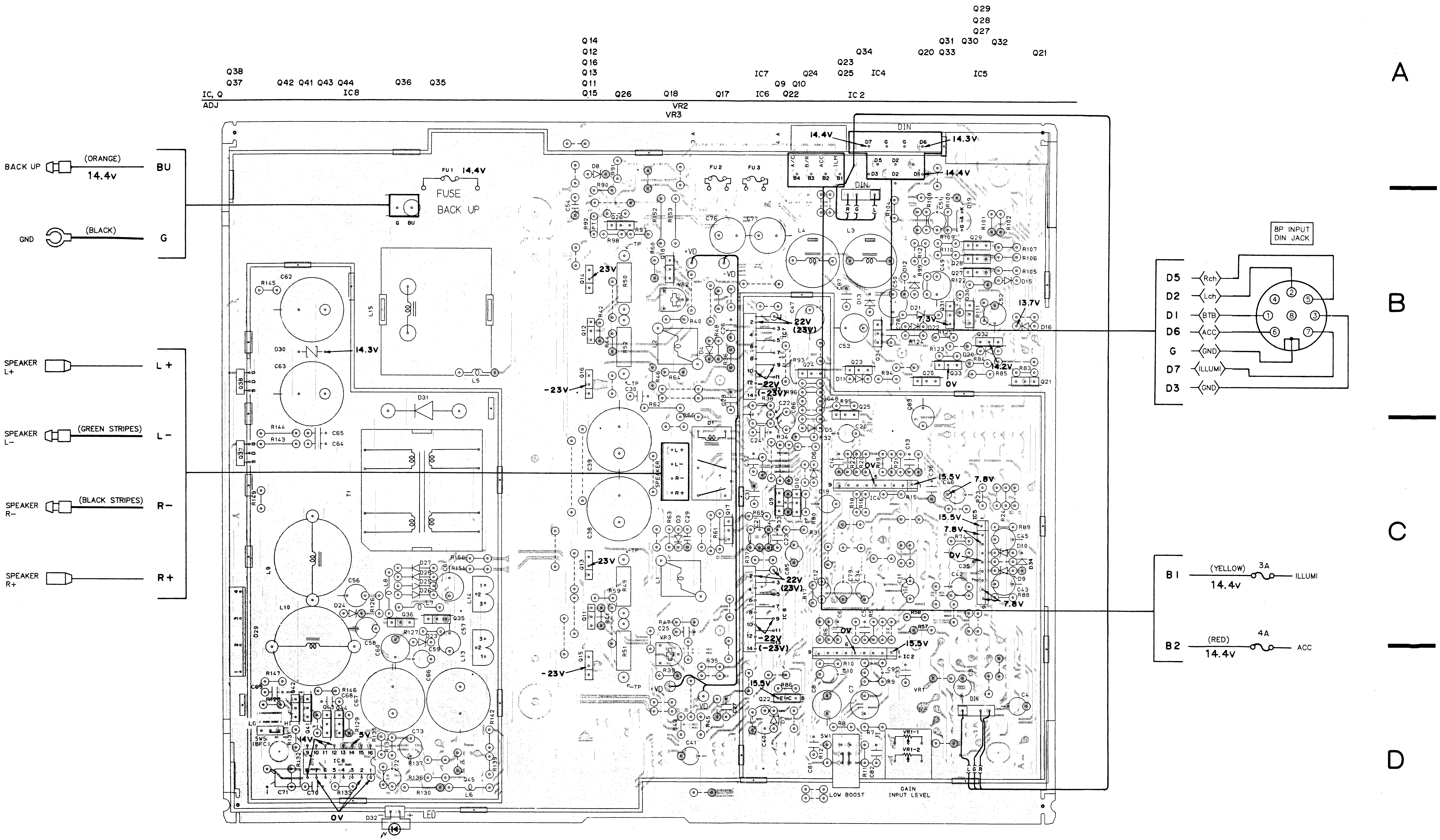
Fig. 27

15. CONNECTION DIAGRAM (GM-1000/EW)

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
		Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


IC, Q
ADJ
Q38
Q37
Q42 Q41 Q43 Q44
IC8
Q36 Q35
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q22
Q24
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
FU1 14.4V
FUSE
BACK UP
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
14.3V
23V
−23V
22V
(23V)
−22V
(−23V)
15.5V
+VD
−VD
14V
5V
0V
LED
D32
SW5
SPEAKER
L9
L10
L15
L5
L6
T1
C62
C63
D30
D31
IC 6
IC7

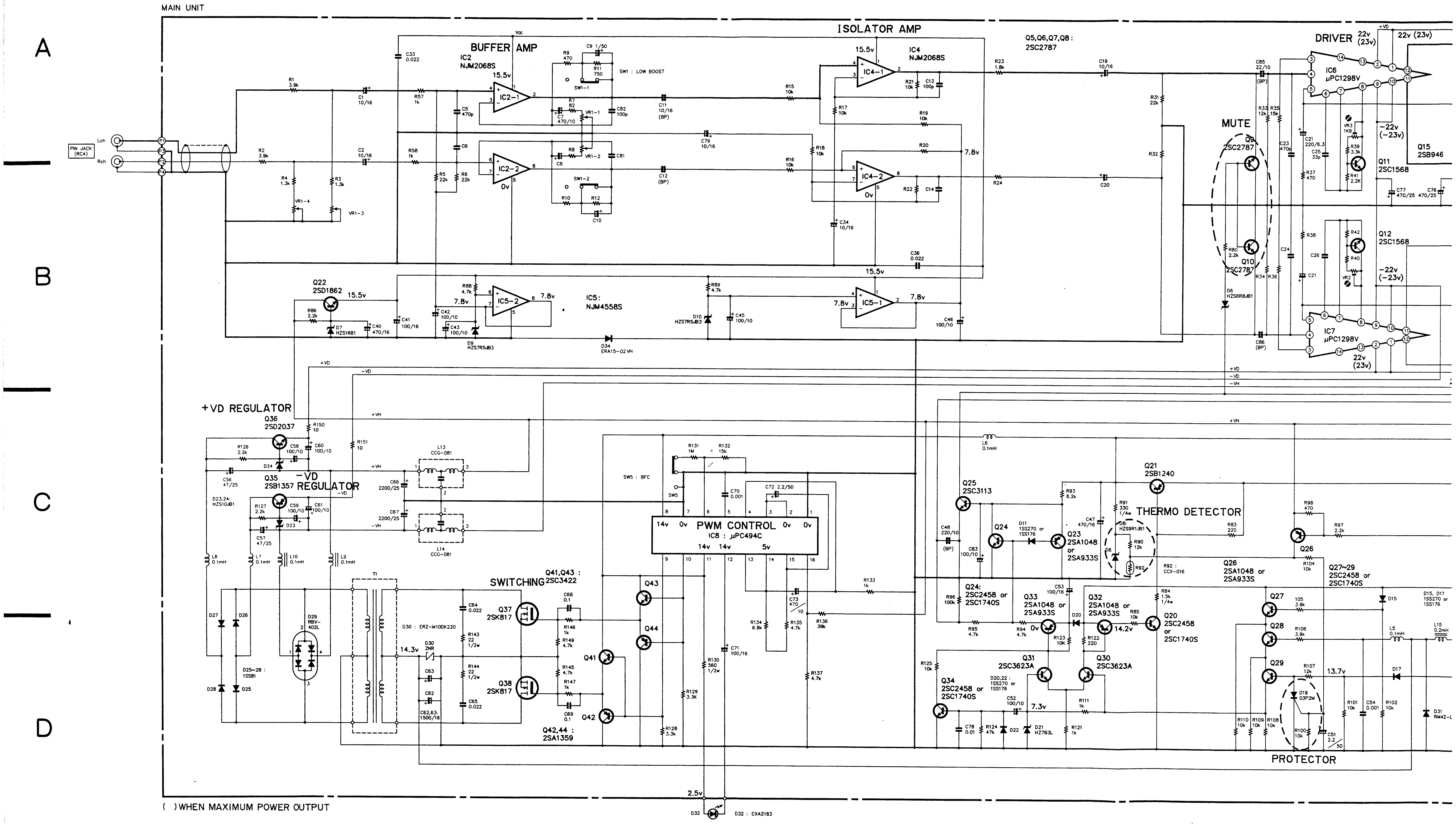
( ) WHEN MAXIMUM POWER OUTPUT


4
5
6
7
8
9
A
B
C
D
IC, Q
ADJ
Q38
Q37
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q22
Q24
Q23
Q25
Q34
IC4
IC2
Q20 Q33
Q31 Q30
Q29
Q28
Q27
Q32
IC5
Q21
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1 14.4V
FUSE
BACK UP
14.3V
−23V
23V
22V
(23V)
−22V
(−23V)
15.5V
7.8V
0V
5V
14V
14.4V
14.3V
13.7V
14.2V
7.3V
DIN
A/C B/R ACC ILM
B4 B3 B2 B1
D7 G G D6
D5 D2
D3 D2 D1
SPEAKER
+VD
−VD
TP
LOW BOOST
GAIN
INPUT LEVEL
VR1-1
VR1-2
LED
D32
8P INPUT
DIN JACK
D5 Rch
D2 Lch
D1 BTB
D6 ACC
G GND
D7 ILLUMI
D3 GND
B1 (YELLOW) 3A 14.4v ILLUMI
B2 (RED) 4A 14.4v ACC
4
5
6
7
8
9

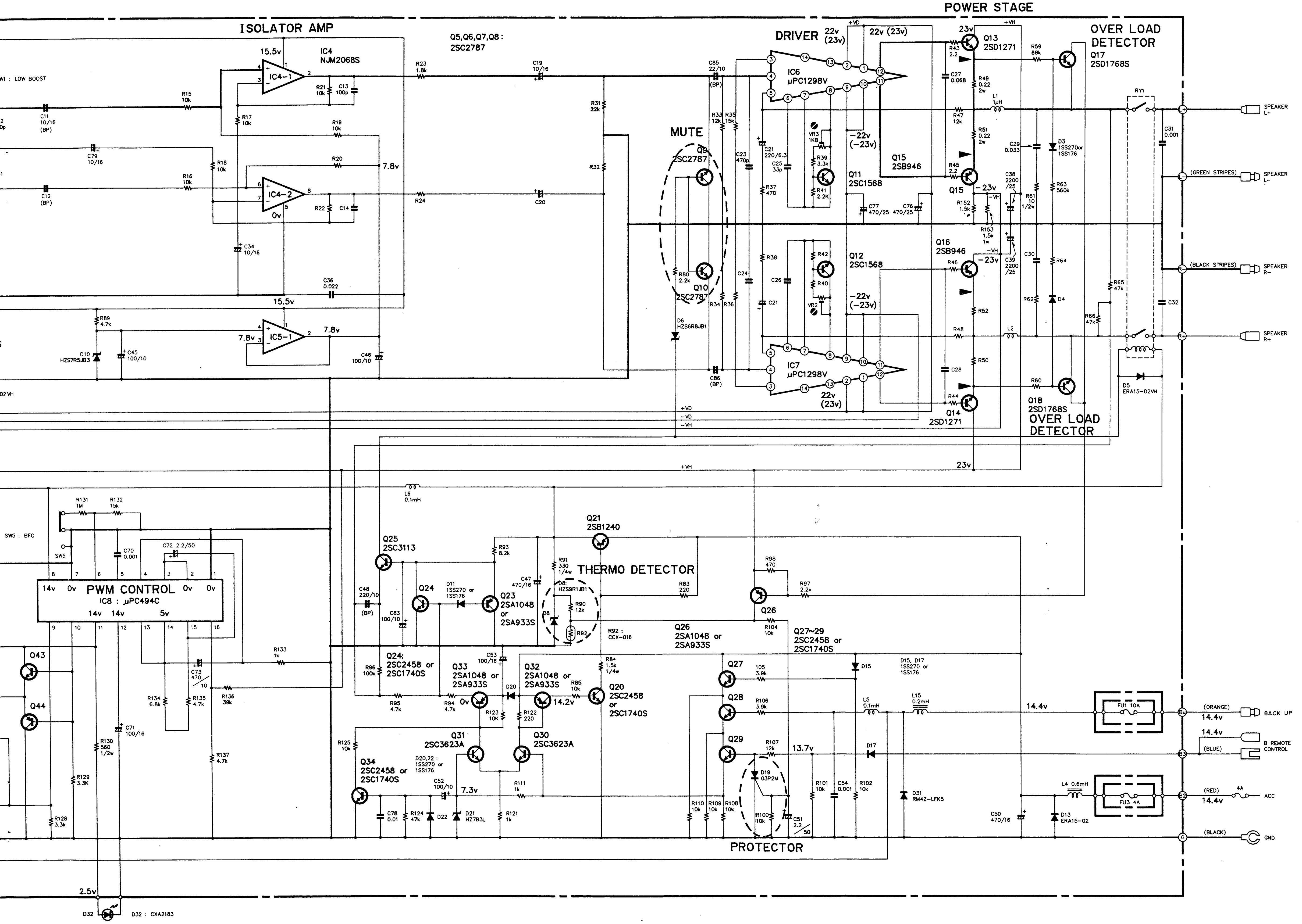
( ) WHEN MAXIMUM POWER OUTPUT

Fig. 28

16. SCHEMATIC CIRCUIT DIAGRAM (GM-1000/UC)


MAIN UNIT
1
2
3
4
5
6
A
B
C
D
PIN JACK (RCA)
Lch
Rch
BUFFER AMP
IC2 NJM2068S
15.5v
IC2-1
IC2-2
0v
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
7.8v
SW1 : LOW BOOST
SW1-1
SW1-2
VR1-1
VR1-2
VR1-3
VR1-4
Q5,Q6,Q7,Q8 : 2SC2787
DRIVER
IC6 µPC1298V
IC7 µPC1298V
22v (23v)
-22v (-23v)
MUTE
Q9 2SC2787
Q10 2SC2787
Q11 2SC1568
Q12 2SC1568
Q15 2SB946
IC5-1
IC5-2
IC5: NJM4558S
Q22 2SD1862
D7 HZS16B1
D9 HZS7R5JB3
D10 HZS7R5JB3
D34 ERA15-02VH
D6 HZS6R8JB1
+VD REGULATOR
Q36 2SD2037
-VD REGULATOR
Q35 2SB1357
D23,24: HZS10JB1
L13 CCG-081
L14 CCG-081
SW5 : BFC
PWM CONTROL
IC8 : µPC494C
SWITCHING
Q41,Q43 : 2SC3422
Q37 2SK817
Q38 2SK817
Q42,44 : 2SA1359
D29 RBV-402L
D25~28 : 1SS81
T1
D30 : ERZ-M10DK220
14.3v
Q21 2SB1240
THERMO DETECTOR
D8: HZS9R1JB1
R92 : CCX-016
Q25 2SC3113
Q24: 2SC2458 or 2SC1740S
Q23 2SA1048 or 2SA933S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
D11 1SS270 or 1SS176
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
14.2v
7.3v
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
D15, D17 1SS270 or 1SS176
D19 03P2M
D31 RM4Z-L
L5 0.1mH
L6 0.1mH
L15 0.2mH
13.7v
PROTECTOR
2.5v
D32 : CXA2183

( )WHEN MAXIMUM POWER OUTPUT



4
5
6
7
8
9
A
B
C
D
ISOLATOR AMP
IC4 NJM2068S
IC4-1
IC4-2
IC5-1
15.5v
7.8v
Q5,Q6,Q7,Q8 : 2SC2787
MUTE
Q9 2SC2787
Q10 2SC2787
D6 HZS6R8JB1
POWER STAGE
DRIVER
IC6 µPC1298V
IC7 µPC1298V
Q11 2SC1568
Q12 2SC1568
Q13 2SD1271
Q14 2SD1271
Q15 2SB946
Q16 2SB946
22v (23v)
-22v (-23v)
OVER LOAD DETECTOR
Q17 2SD1768S
Q18 2SD1768S
RY1
D3 1SS270or 1SS176
D5 ERA15-02VH
SPEAKER L+
(GREEN STRIPES)
SPEAKER L-
(BLACK STRIPES)
SPEAKER R-
SPEAKER R+
+VD
-VD
-VH
+VH
23v
PWM CONTROL
IC8 : µPC494C
SW5 : BFC
SW5
Q43
Q44
D32
D32 : CXA2183
2.5v
Q21 2SB1240
Q25 2SC3113
Q24
Q23 2SA1048 or 2SA933S
THERMO DETECTOR
D8 HZS9R1JB1
R92 : CCX-016
Q26
Q26 2SA1048 or 2SA933S
Q27~29 2SC2458 or 2SC1740S
Q24: 2SC2458 or 2SC1740S
Q33 2SA1048 or 2SA933S
Q32 2SA1048 or 2SA933S
Q20 2SC2458 or 2SC1740S
Q31 2SC3623A
Q30 2SC3623A
Q34 2SC2458 or 2SC1740S
D20,22 : 1SS270 or 1SS176
D21 HZ7B3L
Q27
Q28
Q29
D19 03P2M
D15, D17 1SS270 or 1SS176
D31 RM4Z-LFK5
D13 ERA15-02
PROTECTOR
14.4v
13.7v
7.3v
14.2v
FU1 10A
FU3 4A
(ORANGE)
BACK UP
B REMOTE CONTROL
(BLUE)
(RED)
ACC
(BLACK)
GND

SWITCHES

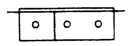
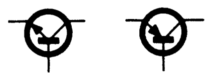
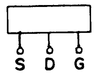
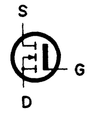
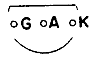
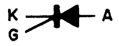
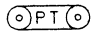
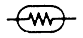
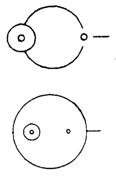
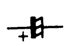
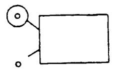
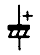
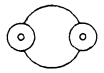
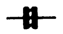
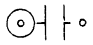
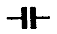
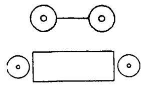
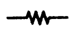
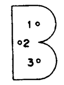
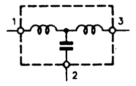
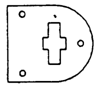
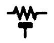
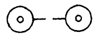
SW1: LOW BOOST SWITCH .... ON-OFF

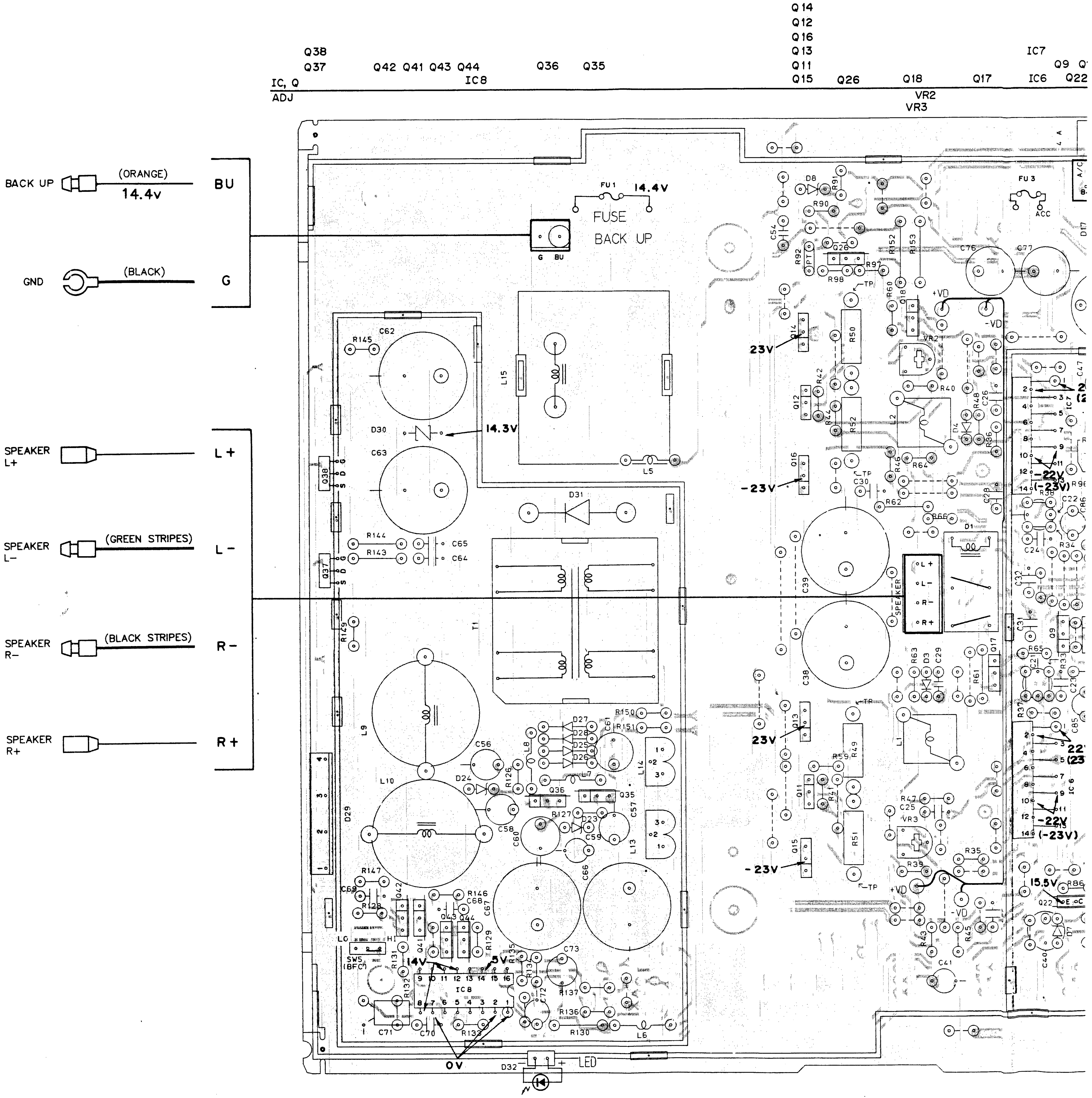
SW5: BFC SWITCH .... LOW-HIGH

The underlined indicates the switch positon.

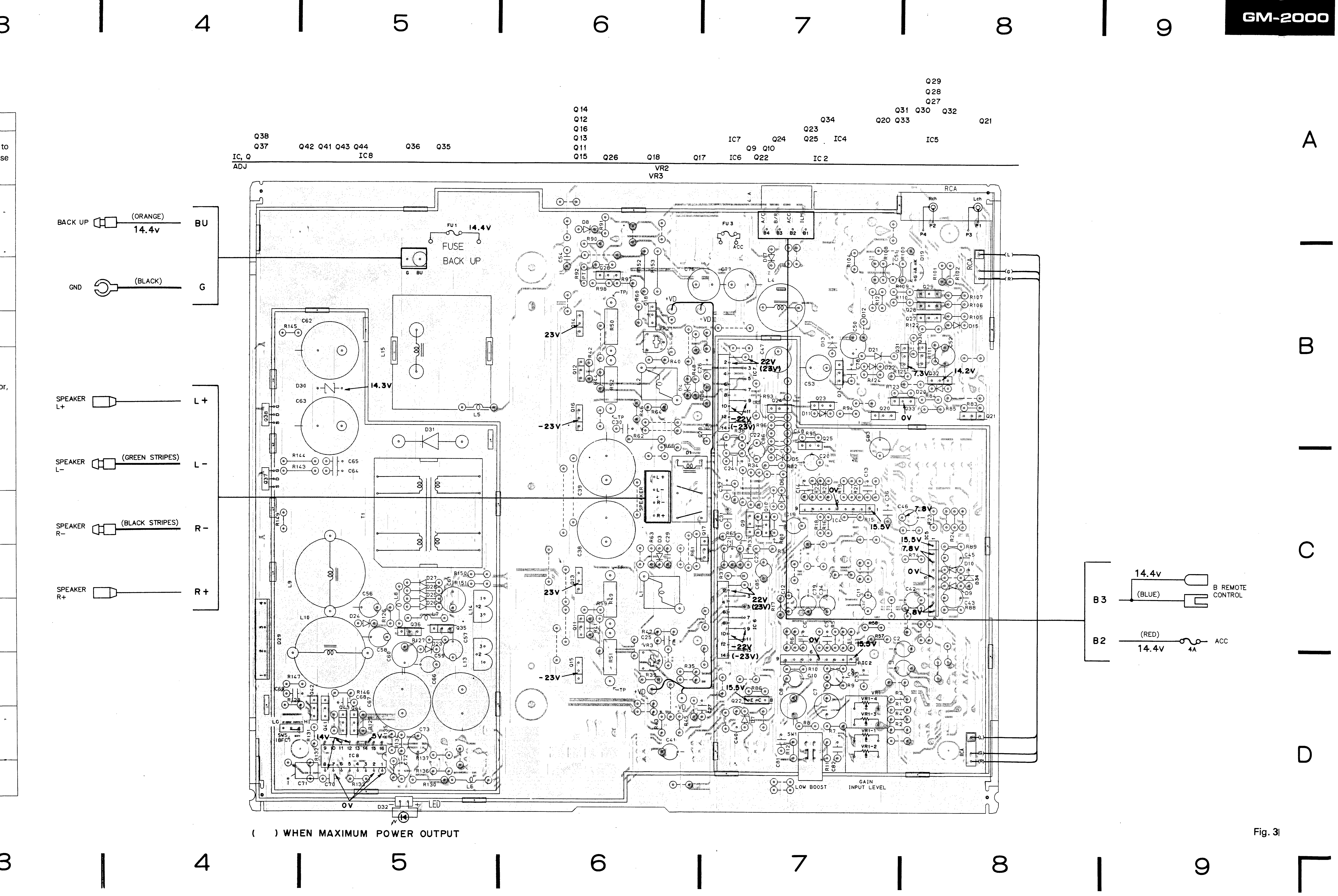
Fig. 29

17. CONNECTION DIAGRAM (GM-1000/UC)

Pattern symbol	Schematic symbol	Representation	Remarks
		Transistor	Transistor E comes in square ⊡, then to left C and B follow unless otherwise indicated.
		FET	
		Thyristor	
		Posistor	
		Electrolytic capacitor (polarized)	In case of polarized electrolytic capacitor, terminal marked ◎ indicates +.
		Electrolytic capacitor (polarized)	
	 (BP)	Electrolytic capacitor (nonpolarized)	
		Capacitor	
		Resistor	
		Filter	
		Semi-fixed resistor	
		Jumper	


Q38
Q37
Q42 Q41 Q43 Q44
IC8
Q36
Q35
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
Q17
IC7
IC6
Q9
Q22
IC, Q
ADJ
VR2
VR3
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1 14.4V
FUSE
BACK UP
14.3V
23V
−23V
−22V
(−23V)
14V
5V
0V
15.5V
LED
SPEAKER
+VD
−VD
TP

( ) WHEN MAXIMUM POWER OUTPUT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Q36
Q35
Q14
Q12
Q16
Q13
Q11
Q15
Q26
Q18
VR2
VR3
Q17
IC7
IC6
Q9 Q10
Q24
Q22
Q23
Q25
Q34
IC4
IC2
Q20 Q33
Q31 Q30
Q29
Q28
Q27
Q32
IC5
Q21
BACK UP
(ORANGE)
14.4v
BU
GND
(BLACK)
G
SPEAKER L+
L+
SPEAKER L−
(GREEN STRIPES)
L−
SPEAKER R−
(BLACK STRIPES)
R−
SPEAKER R+
R+
FU1
14.4V
FUSE
BACK UP
FU3
ACC
A/C
B/R
ACC
ILM
B4
B3
B2
B1
RCA
Rch
Lch
P1
P2
P3
P4
14.3V
23V
−23V
22V
(23V)
−22V
(−23V)
7.3V
14.2V
0V
7.8V
15.5V
14V
5V
+VD
−VD
TP
SPEAKER
L+
L−
R−
R+
T1
L9
L10
L15
D29
D30
D31
D32
LED
SW1
SW5
LOW BOOST
GAIN
INPUT LEVEL
VR1
VR1-1
VR1-2
VR1-3
VR1-4
B3
(BLUE)
14.4v
B REMOTE CONTROL
B2
(RED)
14.4v
4A
ACC
(L)
(G)
(R)

( ) WHEN MAXIMUM POWER OUTPUT

Fig. 3

18. EXPLODED VIEW

18.1 GM-2000

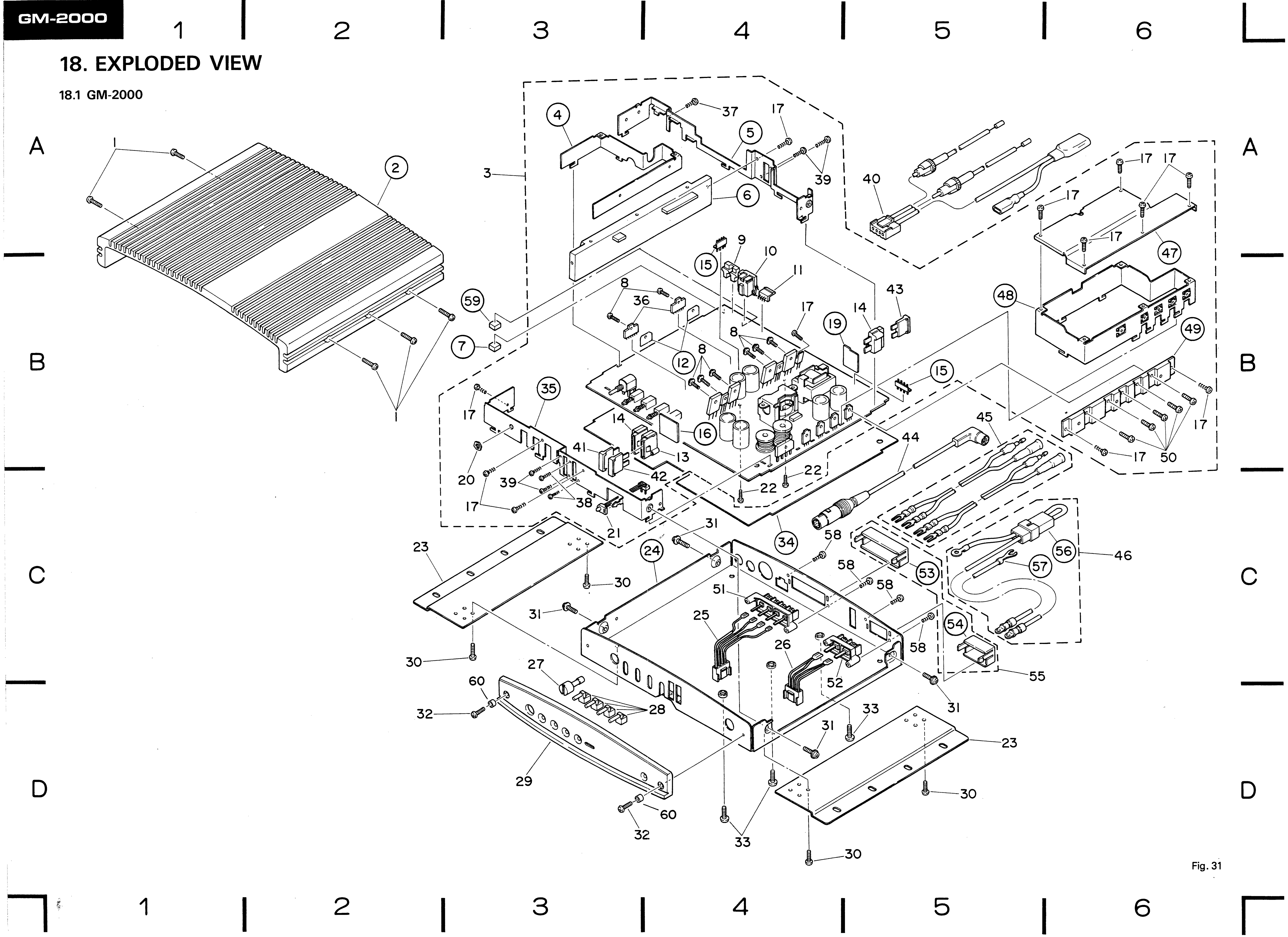
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Fig. 31

NOTE:

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- *Parts*
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●Parts

Mark -

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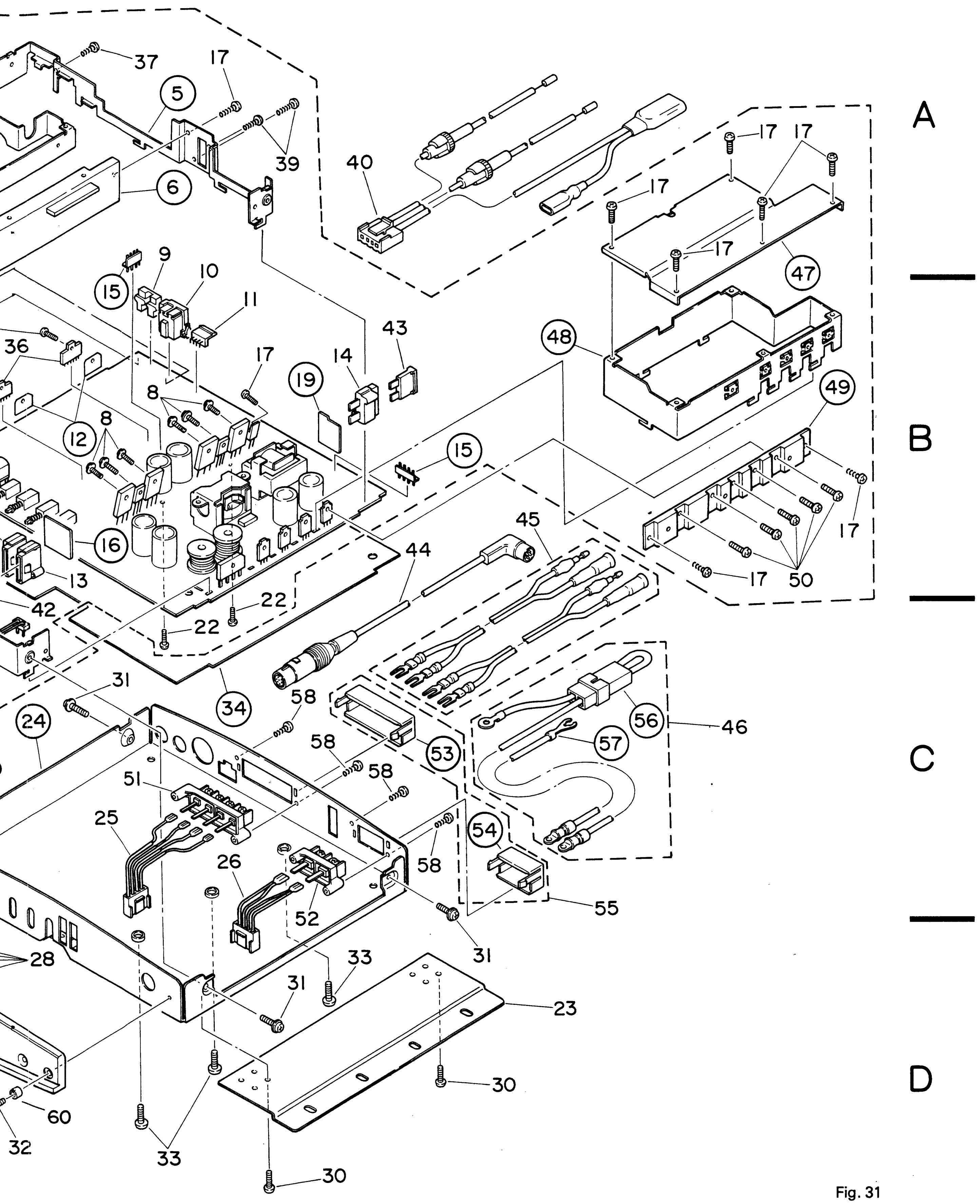

Fig. 31

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

● Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	AMZ30P080FZK	Screw			CXA2415	Grille Assy(EW)
	2		Heat Sink Assy(ES,EW)		30	BMZ50P060FZK	Screw
			Heat Sink Assy(UC)		31	BMZ30P050FMC	Screw
◉	3	CWM1640	Main Unit(ES)		32	BMZ30P080FZK	Screw
◉		CWM1639	Main Unit(UC)		33	BMZ40P080FMC	Screw
◉		CWM1641	Main Unit(EW)		34		Insulator
	4		Shield		35		Bracket
	5		Bracket	★★	36	μPC1298V	IC
	6		Heat Sink		37	BMZ20P080FMC	Screw(ES,EW)
	7		Cushion		38	PTZ20P080FMC	Screw(ES,EW)
	8	PMF30P100FMC	Screw		39	PTZ20P080FMC	Screw
	9	CKS1466	Pin Jack(ES,UC)	★	40	CDE2106	Cord Assy(ES)
	10	CKS1156	Connector(ES,EW)	★		CDE2107	Cord Assy(UC)
	11	CKS1340	Connector(4P)	★		CDE2105	Cord Assy(EW)
	12		Rubber	★★	41	CEK1001	Fuse(4A)
	13	CKR1001	Fuse Holder(ES,EW)	★★	42	CEK1134	Fuse(3A)(ES,EW)
	14	CKR1001	Fuse Holder	★★	43	CEK1137	Fuse(15A)
	15		Plug(4P)		44	CDE1846	DIN Connector(EW)
	16		P.C.Board		45	CDE2018	Cord
	17	BMZ30P050FMC	Screw	★	46	CDE1997	Cord Assy(ES,UC,EW)
	18	·····			47		Shield
	19		P.C.Board		48		Shield
	20	CBN-032	Nut		49		Heat Sink
★	21	CXA2183	LED Assy		50	BMZ26P080FMC	Screw
	22	BMZ30P060FMC	Screw		51	CKE1004	4P Terminal
	23	CNC2099	Bracket		52	CKE1007	2P Terminal
	24		Case(ES)		53		Cover
			Case(UC)		54		Cover
			Case(EW)		55	CEA1345	Cover Assy
	25	CDE2028	Cord(4P)		56		Cord
★	26	CDE2030	Cord(4P)		57		Cord
★	27	CAA1135	Knob		58	BTZ30P080FZK	Screw
★	28	CAC1701	Button		59		Cushion
	29	CXA2378	Grille Assy(ES)		60	CNC2375	Collar
		CXA2423	Grille Assy(UC)				

18.2 GM-1000

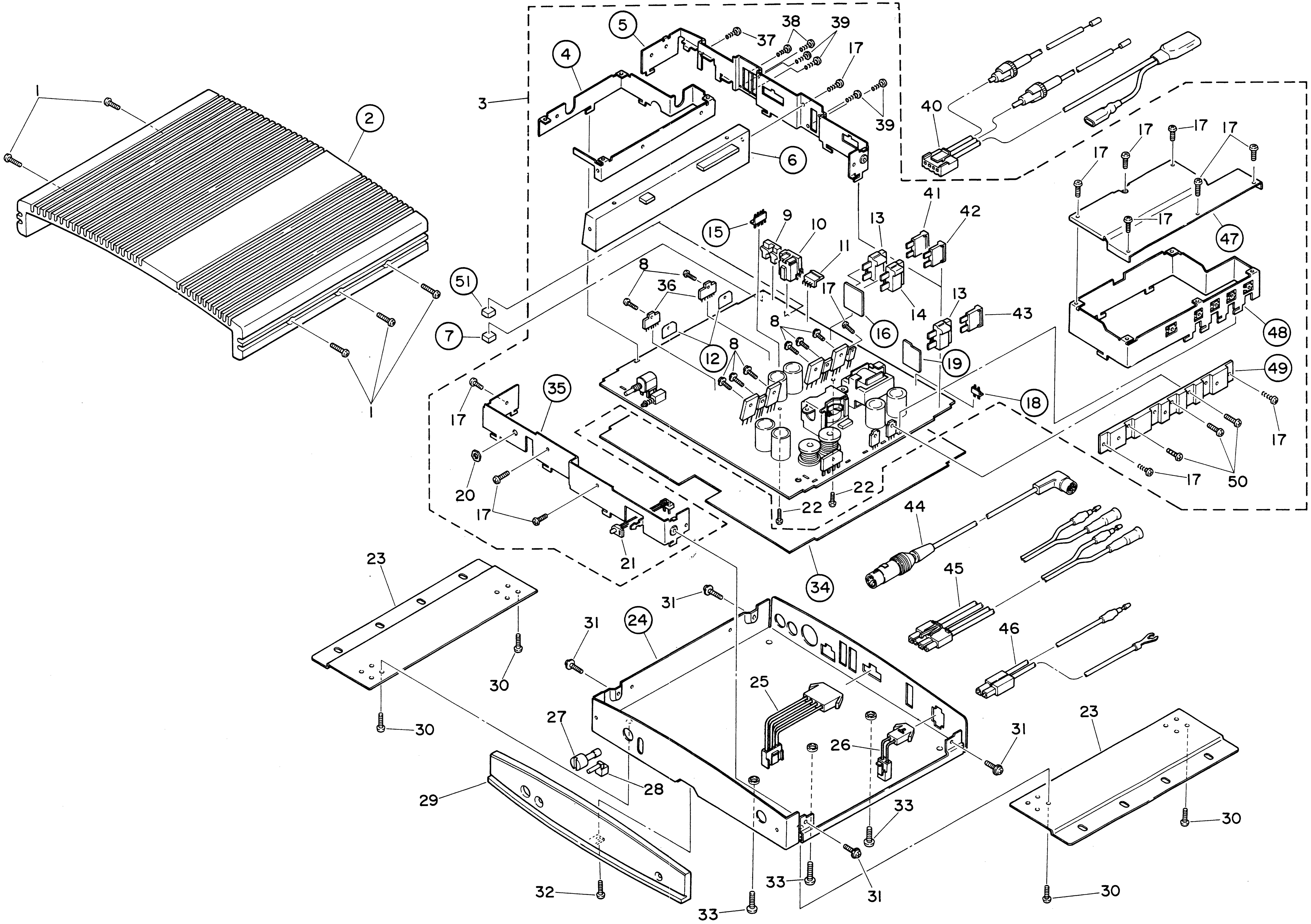
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Fig. 32

● Parts
Mark

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★

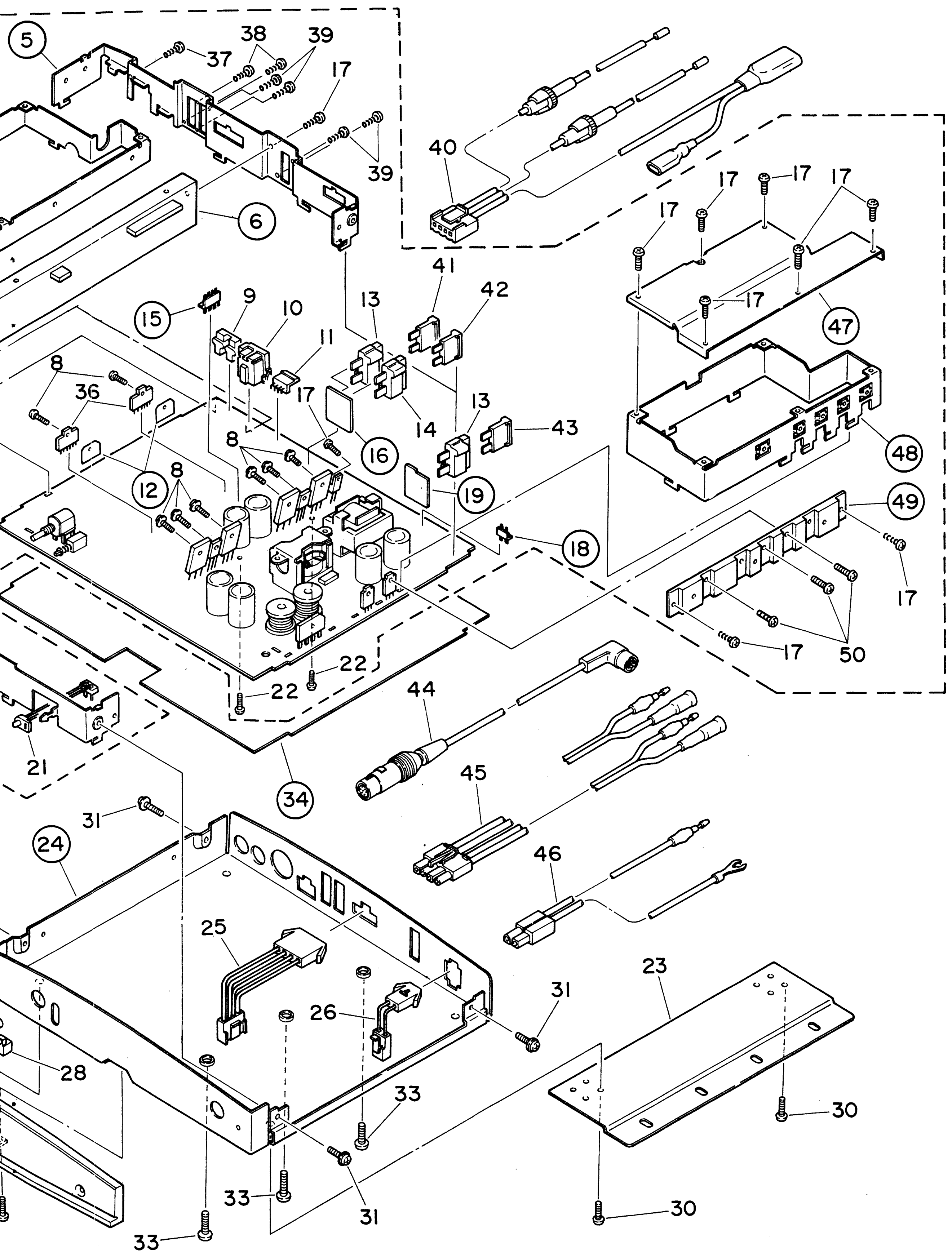
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Fig. 32

●Parts List

Mark	No.	Part No.	Description
	1	AMZ30P120FZK	Screw
	2		Heat Sink Assy(ES, EW)
			Heat Sink Assy(UC)
◉	3	CWM1644	Main Unit(ES)
◉		CWM1643	Main Unit(UC)
◉		CWM1645	Main Unit(EW)
	4		Shield
	5		Bracket
	6		Heat Sink
	7		Cushion
	8	PMF30P080FMC	Screw
	9	CKS1466	Pin Jack(ES, UC)
	10	CKS1156	Connector(ES, EW)
	11	CKS1340	Connector(4P)
	12		Rubber
	13	CKR1001	Fuse Holder
	14	CKR1001	Fuse Holder(ES, EW)
	15		Plug(4P)
	16		P.C.Board
	17	BMZ30P050FMC	Screw
	18		Plug(2P)
	19		P.C.Board
	20	CBN-032	Nut
★	21	CXA2183	LED Assy
	22	BMZ30P060FMC	Screw
	23	CNC2099	Bracket
	24		Case(ES)
			Case(UC)
			Case(EW)
	25	CDE1839	Cord(4P)
★	26	CDE1885	Cord(4P)
★	27	CAA1135	Knob
★	28	CAC1701	Button
	29	CXA2379	Grille Assy(ES, UC)
		CXA2417	Grille Assy(UC)
	30	BMZ50P060FZK	Screw
	31	BMZ30P050FMC	Screw
	32	BMZ30P050FZK	Screw
	33	BMZ40P080FMC	Screw
	34		Insulator
	35		Bracket
★★	36	μPC1298V	IC
	37	BMZ20P080FMC	Screw(ES, EW)
	38	PTZ20P080FMC	Screw(ES, EW)
	39	PTZ20P080FMC	Screw
★	40	CDE2110	Cord Assy(ES)
		CDE2111	Cord Assy(UC)
		CDE2109	Cord Assy(EW)
★★	41	CEK1001	Fuse(4A)
★★	42	CEK1134	Fuse(3A)(ES, EW)
★★	43	CEK1136	Fuse(10A)
	44	CDE1847	DIN Connector(EW)
	45	CDE1836	Cord
★	46	CDE1840	Cord Assy(ES, UC, EW)
	47		Shield
	48		Shield
	49		Heat Sink
	50	BMZ26P080FMC	Screw
	51		Cushion

19. ELECTRICAL PARTS LIST

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ** and *.*
  *** : GENERALLY MOVES FASTER THAN *.*
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S □□□J
  Chip Capacitor (except for CQS. . . . .)
  CKS. . . . ., CCS. . . . .

Model Number : GM-2000/ES UC EW

Unit Number :
Unit Name : Main unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1	(ES)	TC4066BP
**	IC 2 4		NJM2068S
**	IC 3		TC4066BP
**	IC 5		NJM4558S
**	IC 6 7		µPC1298V
**	IC 8		µPC494C
**	Q 1 2	(ES)	2SC2458 (2SC1740S)
**	Q 3 4 20 24 27 28 29 34 45 46		2SC2458 (2SC1740S)
**	Q 5 6 7 8 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1704
**	Q 15 16		2SB1154
**	Q 17 18		2SD1768S
**	Q 23 26 32 33		2SA1048 (2SA933S)
**	Q 21		2SB1240
**	Q 22		2SD2037
**	Q 25		2SC3113
**	Q 30 31		2SC3623A
**	Q 35		2SB1357
**	Q 36		2SD2037
**	Q 37 38 39 40		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 1 2 3 4 11 15 20 22		1SS176 (US1040M) (1SS270)
*	D 5 13 34		ERA15-02VH
*	D 6		HZS6R8JB1 (RD6R8JSB1)
*	D 7		HZS9R1JB1 (RD9R1JSB1)
*	D 8		HZS9R1JB1 (RD9R1JSB1)
*	D 9 10		HZS4R7EB2 (RD4R5ESB2)
*	D 12	(ES EW)	ERA15-02VH
*	D 16	(EW)	1SS176 (US1040M) (1SS270)
*	D 16 17 33	(ES)	1SS176 (US1040M) (1SS270)
*	D 17	(UC)	1SS176 (US1040M) (1SS270)
*	D 19	Thyristor	03P2M
*	D 21		HZ7B3L
*	D 23 24		HZS4R3EB1 (RD4R3ESB1)
*	D 25 26 27 28		1SS81
*	D 29		RBV-402L
*	D 30	Serge Absorber	ERZ-M10DK220
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 3	Choke Coil(ES EW)	CTH1048
	L 4	Choke Coil	CTH1048
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100µH	CTF-113
	L 9 10	Choke Coil	CTH1036
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1031
**	SW 1 2 3 4	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume 2kΩ(C)×2, 3kΩ(A)×2 (ES UC)	CCS1095
**	VR 1	Volume 2kΩ(C)×2 (EW)	CCS1103
**	VR 2 3	Semi-fixed	VRTB6VS102
	RY 1	Relay	CSR1010
	T 1	Transformer	CTT1004
**	FU 1	Fuse 15A	CEK1137
**	FU 2	Fuse 3A (ES EW)	CEK1134
**	FU 3	Fuse 4A	CEK1001

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2	(ES UC)	RD1/4PS392JL
	R 3 4	(ES UC)	RD1/4PS132JL
	R 5 6 31 32		RD1/4PS223JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 13 14 71 72		RD1/4PS152JL
	R 15 16 18 93		RD1/4PS822JL
	R 17 19 20 21 22		RD1/4PS103JL
	R 23 24 27 28		RD1/4PS821JL
	R 25 26 29 30		RD1/4PS104JL
	R 33 34 47 48		RD1/4PS153JL
	R 35 36		RD1/4PS153JL
	R 39 40		RD1/4PS332JL
	R 41 42 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 53 54 55 56 61 62		RS1/2P100JL
	R 57 58 111 121 133 146 147		RD1/4PS102JL
	R 59 60 136		RD1/4PS393JL
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 67	(ES)	RD1/4PS223JL
	R 68	(ES)	RD1/4PS103JL
	R 69 70	(ES)	RD1/4PS222JL
	R 73		RD1/4PS223JL
	R 75		RD1/4PS473JL
	R 76 77		RD1/4PS222JL
	R 78 139 142		RD1/4PS103JL
	R 79		RD1/4PM102J
	R 80		RD1/4PS222JL
	R 83 122		RD1/4PS221JL
	R 84		RD1/4PS152JL
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS472JL
	R 88 89		RD1/4PS102JL
	R 90		RD1/4PS123JL
	R 91		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 94 95 135 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 107		RD1/4PS123JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 128 129		RD1/4PS332JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS223JL
	R 137		RD1/4PS222JL
	R 138		RD1/4PS561JL
	R 140		RD1/4PS242JL
	R 141		RD1/4PS432JL
	R 143 144		RS1/2P220JL
	R 148		RD1/4PS681JL
	R 150 151		RD1/4PS330JL
	R 152 153		RS1P152JL
	R 154 155		RD1/4PS220JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10 15 16 17 18		CEA010M50L2
	C 11 12	10µF/16V	CCH1034
	C 13 14		CCCCH101J50
	C 19 20		CEKA100M16
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32 74 75		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 35		CEA4R7M25L2
	C 37		CEA220M16L2
	C 38 39	2200µF/35V	CCH1028
	C 40		CEA471M10L2
	C 41		CEA101M10L2
	C 42 43 45 46		CEA101M10L2
	C 47 50	470µF/16V	CCH-114
	C 48		CEA221M10NPLL
	C 49	470µF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 53		CEA101M16L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	3300µF/16V	CCH1023
	C 66 67	2200µF/35V	CCH1024
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 80	(ES)	CEA100M16L2
	C 76 77		CEA471M35L2
	C 78		CQMA103K50
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22µF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50

Model Number :

Unit Number :
Unit Name :

MISCELLANEOUS

Mark	
**	IC 1
**	IC 2
**	IC 5
**	IC 6
**	IC 8
**	Q 1
**	Q 9 1
**	Q 11 1
**	Q 13 1
**	Q 15 1
**	Q 17 1
**	Q 23 2
**	Q 20 2
**	Q 21
**	Q 22
**	Q 25
**	Q 30 3
**	Q 35
**	Q 36
**	Q 37 3
**	Q 41 4
**	Q 42 4
*	D 3
*	D 5
*	D 6
*	D 7
*	D 8
*	D 9
*	D 12
*	D 16
*	D 16
*	D 17
*	D 19
*	D 21
*	D 23
*	D 25
*	D 29

Mark	Circuit Symbol & No.	Part Name	Part No.
	RY 1	Relay	CSR1010
	T 1	Transformer	CTT1004
**	FU 1	Fuse 15A	CEK1137
**	FU 2	Fuse 3A (ES EW)	CEK1134
**	FU 3	Fuse 4A	CEK1001

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2	(ES UC)	RD1/4PS392JL
	R 3 4	(ES UC)	RD1/4PS132JL
	R 5 6 31 32		RD1/4PS223JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 13 14 71 72		RD1/4PS152JL
	R 15 16 18 93		RD1/4PS822JL
	R 17 19 20 21 22		RD1/4PS103JL
	R 23 24 27 28		RD1/4PS821JL
	R 25 26 29 30		RD1/4PS104JL
	R 33 34 47 48		RD1/4PS153JL
	R 35 36		RD1/4PS153JL
	R 39 40		RD1/4PS332JL
	R 41 42 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 53 54 55 56 61 62		RS1/2P100JL
	R 57 58 111 121 133 146 147		RD1/4PS102JL
	R 59 60 136		RD1/4PS393JL
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 67	(ES)	RD1/4PS223JL
	R 68	(ES)	RD1/4PS103JL
	R 69 70	(ES)	RD1/4PS222JL
	R 73		RD1/4PS223JL
	R 75		RD1/4PS473JL
	R 76 77		RD1/4PS222JL
	R 78 139 142		RD1/4PS103JL
	R 79		RD1/4PM102J
	R 80		RD1/4PS222JL
	R 83 122		RD1/4PS221JL
	R 84		RD1/4PS152JL
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS472JL
	R 88 89		RD1/4PS102JL
	R 90		RD1/4PS123JL
	R 91		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 94 95 135 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 107		RD1/4PS123JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 128 129		RD1/4PS332JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS223JL
	R 137		RD1/4PS222JL
	R 138		RD1/4PS561JL
	R 140		RD1/4PS242JL
	R 141		RD1/4PS432JL
	R 143 144		RS1/2P220JL
	R 148		RD1/4PS681JL
	R 150 151		RD1/4PS330JL
	R 152 153		RS1P152JL
	R 154 155		RD1/4PS220JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10 15 16 17 18		CEA010M50L2
	C 11 12	10μF/16V	CCH1034
	C 13 14		CCCCH101J50
	C 19 20		CEKA100M16
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32 74 75		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 35		CEA4R7M25L2
	C 37		CEA220M16L2
	C 38 39	2200μF/35V	CCH1028
	C 40		CEA471M10L2
	C 41		CEA101M10L2
	C 42 43 45 46		CEA101M10L2
	C 47 50	470μF/16V	CCH-114
	C 48		CEA221M10NPLL
	C 49	470μF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 53		CEA101M16L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	3300μF/16V	CCH1023
	C 66 67	2200μF/35V	CCH1024
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 80	(ES)	CEA100M16L2
	C 76 77		CEA471M35L2
	C 78		CQMA103K50
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22μF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50

Model Number : GM-1000/ES UC EW

Unit Number :
Unit Name : Main unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 1	(ES)	TC4066BP
**	IC 2 4		NJM2068S
**	IC 5		NJM4558S
**	IC 6 7		μPC1298V
**	IC 8		μPC494C
**	Q 1 2	(ES)	2SC2458 (2SC1740S)
**	Q 9 10		2SC2787
**	Q 11 12		2SC1568
**	Q 13 14		2SD1271
**	Q 15 16		2SB946
**	Q 17 18		2SD1768S
**	Q 23 26 32 33		2SA1048 (2SA933S)
**	Q 20 24 27 28 29 34		2SC2458 (2SC1740S)
**	Q 21		2SB1240
**	Q 22		2SD1862
**	Q 25		2SC3113
**	Q 30 31		2SC3623A
**	Q 35		2SB1357
**	Q 36		2SD2037
**	Q 37 38		2SK817
**	Q 41 43		2SC3422
**	Q 42 44		2SA1359
*	D 3 4 11 15 20 22		1SS176 (US1040M) (1SS270)
*	D 5 13 34		ERA15-02VH
*	D 6		HZS6R8JB1 (RD6R8JSB1)
*	D 7		HZS16JB1 (RD16JSB1)
*	D 8		HZS9R1JB1 (RD9R1JSB1)
*	D 9 10		HZS7R5JB3 (RD7R5JSB3)
*	D 12	(ES EW)	ERA15-02VH
*	D 16	(EW)	1SS176 (US1040M) (1SS270)
*	D 16 17 33	(ES)	1SS176 (US1040M) (1SS270)
*	D 17	(UC)	1SS176 (US1040M) (1SS270)
*	D 19	Thyristor	03P2M
*	D 21		HZ7B3L
*	D 23 24		HZS10JB1 (RD10JSB1)
*	D 25 26 27 28		1SS81
*	D 29		RBV-402L
*	D 30	Serge Absorber	ERZ-M10DK220
*	D 31		RM4Z-LFK5
*	D 32	LED Assy	CXA2183
	L 1 2	Coil	CTH1028
	L 3	Choke Coil(ES EW)	CTH1048
	L 4	Choke Coil	CTH1048
	L 5	Ferri-Inductor	CTF-157
	L 6 7 8	Coil 100μH	CTF-113
	L 9 10	Choke Coil	CTH1034
	L 13 14		CCG-081
	L 15	Choke Coil	CTH1033
**	SW 1	Switch	CSG1023
**	SW 5	Switch	HSH-156
**	VR 1	Volume 2kΩ(C)×2, 3kΩ(A)×2 (ES UC)	CCS1095
**	VR 1	Volume 2kΩ(C)×2 (EW)	CCS1103
**	VR 2 3	Semi-fixed	VRTB6VS102
	RY 1	Relay	CSR1010
	T 1	Transformer	CTT1005
**	FU 1	Fuse 10A	CEK1136
**	FU 2	Fuse 3A (ES EW)	CEK1134
**	FU 3	Fuse 4A	CEK1001

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2	(ES UC)	RD1/4PS392JL
	R 3 4	(ES UC)	RD1/4PS132JL
	R 5 6 31 32		RD1/4PS223JL
	R 7 8		RD1/4PS820JL
	R 9 10 37 38 98		RD1/4PS471JL
	R 11 12		RD1/4PS751JL
	R 15 16 17 18 19 20 21 22		RD1/4PS103JL
	R 23 24		RD1/4PS182JL
	R 33 34 47 48 107		RD1/4PS123JL
	R 35 36		RD1/4PS153JL
	R 39 40 128 129		RD1/4PS332JL
	R 41 42 97 126 127		RD1/4PS222JL
	R 43 44 45 46		RD1/4PS2R2JL
	R 49 50 51 52	0.22Ω/2W	CCN1013
	R 57 58 111 121 133 146 147		RD1/4PS102JL
	R 59 60		RD1/4PS683JL
	R 61 62		RD1/4PM100J
	R 63 64		RD1/4PS564JL
	R 65 66		RD1/4PS473JL
	R 67	(ES)	RD1/4PS223JL
	R 68	(ES)	RD1/4PS103JL
	R 69 70	(ES)	RD1/4PS222JL
	R 80		RD1/4PS222JL
	R 83 122		RD1/4PS221JL
	R 84		RD1/4PS152JL

20. PACKING METHOD

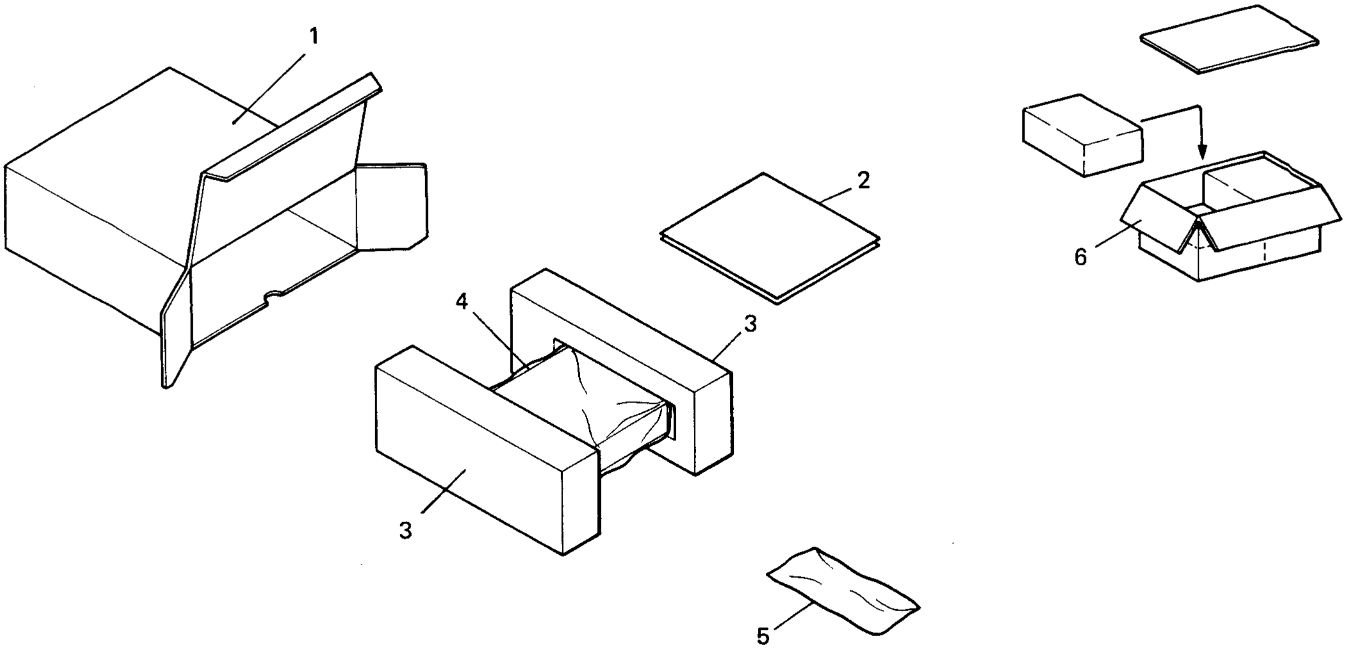

Fig. 33

● Parts List

Mark	No.	Part No.	Description
	1	CHG1469	Carton (GM-2000/ES)
		CHG1467	Carton (GM-2000/EW)
		CHG1468	Carton (GM-2000/UC)
		CHG1466	Carton (GM-1000/ES)
		CHG1464	Carton (GM-1000/EW)
		CHG1465	Carton (GM-1000/UC)
	2	CRD1203	Owner' s Manual (GM-2000/ES)
		CRD1200	Owner' s Manual (GM-1000/ES)
			(English , French , Spanish , Arabic)
		CRD1201	Owner' s Manual (GM-2000/EW)
		CRD1198	Owner' s Manual (GM-1000/EW)
			(English , French , German , Spanish , Swedish , Norwegian , Dutch , Italian)
		CRD1202	Owner' s Manual (GM-2000/UC)
		CRD1199	Owner' s Manual (GM-1000/UC)
			(English , French)
	3	CHP1138	Styrofoam (GM-2000)
		CHP1137	Styrofoam (GM-1000)
	4	CEG1042	Polyethylene Bag
	5	CEA1336	Accessory Assy (GM-2000ES)
		CEA1338	Accessory Assy (GM-2000EW)
		CEA1339	Accessory Assy (GM-2000UC)
		CEA1340	Accessory Assy (GM-1000ES)
		CEA1342	Accessory Assy (GM-1000EW)
		CEA1343	Accessory Assy (GM-1000UC)
	5-1	CDE2106	Cord (GM-2000/ES)
		CDE2105	Cord (GM-2000/EW)
		CDE2107	Cord (GM-2000/UC)
		CDE2110	Cord (GM-1000/ES)
		CDE2109	Cord (GM-1000/EW)
		CDE2111	Cord (GM-1000/UC)
	5-2	CDE1997	Cord Assy (GM-2000)
		CDE1840	Cord Assy (GM-1000)
	5-2-1		Cord (GM-2000)
	5-2-2		Cord (GM-2000)
	5-3	CDE2018	Cord (GM-2000)
		CDE1836	Cord (GM-1000)
	5-4	CDE1846	DIN Connector (GM-2000/EW)
		CDE1847	DIN Connector (GM-1000/EW)
	5-5		Screw Kit
	5-5-1	BMZ50P060FZK	Screw (×4)
	5-5-2	BTZ50P160FZK	Screw (×8)
	5-6	CEA1345	Cover Assy (GM-2000)
	5-6-1		Cover (GM-2000)
	5-6-2		Cover (GM-2000)
	5-7	CNC2099	Bracket(×2)
	6	CHL1468	Contain Box (GM-2000/UC
		CHL1465	Contain Box (GM-1000/UC

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Mark	Circuit Symbol & No.	Part Name	Part No.
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS222JL
	R 88 89		RD1/4PS472JL
	R 90		RD1/4PS123JL
	R 91 150		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 93		RD1/4PS822JL
	R 94 95 135 137 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 150		RD1/4PS100JL
	R 151		RD1/4PS100JL
	R 152 153		RS1P152JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2
	C 11 12 19 20		CEKA100M16
	C 13 14		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 38 39	2200µF/25V	CCH1027
	C 40 47 50	470µF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 42 43 45 46		CEA101M10L2
	C 48		CEA221M10NPLL
	C 49	470µF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	1500µF/16V	CCH1021
	C 66 67	2200µF/25V	CCH1022
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78		CQMA103K50
	C 80	(ES)	CEA100M16L2
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22µF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50

20. PACKING METHOD

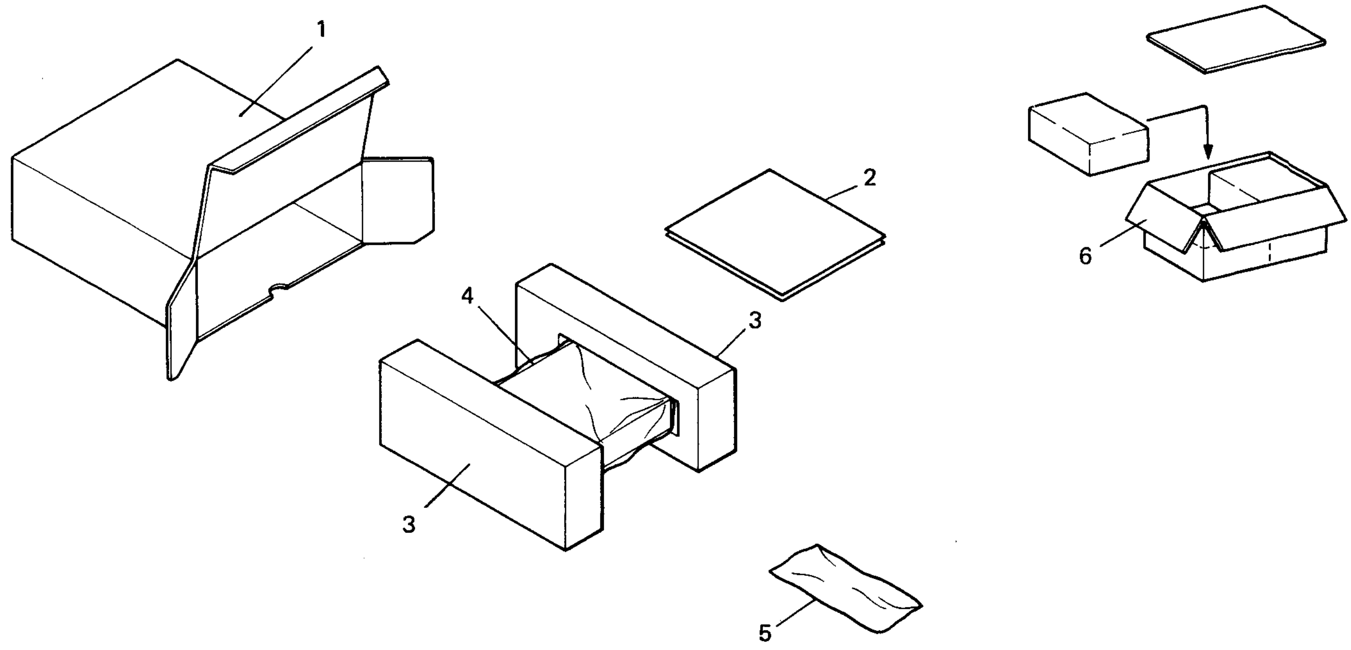

Fig. 33

● Parts List

Mark	No.	Part No.	Description
	1	CHG1469	Carton (GM-2000/ES)
		CHG1467	Carton (GM-2000/EW)
		CHG1468	Carton (GM-2000/UC)
		CHG1466	Carton (GM-1000/ES)
		CHG1464	Carton (GM-1000/EW)
		CHG1465	Carton (GM-1000/UC)
	2	CRD1203	Owner' s Manual (GM-2000/ES)
		CRD1200	Owner' s Manual (GM-1000/ES) (English , French , Spanish , Arabic)
		CRD1201	Owner' s Manual (GM-2000/EW)
		CRD1198	Owner' s Manual (GM-1000/EW) (English , French , German , Spanish , Swedish , Norwegian , Dutch , Italian)
		CRD1202	Owner' s Manual (GM-2000/UC)
		CRD1199	Owner' s Manual (GM-1000/UC) (English , French)
	3	CHP1138	Styrofoam (GM-2000)
		CHP1137	Styrofoam (GM-1000)
	4	CEG1042	Polyethylene Bag
	5	CEA1336	Accessory Assy (GM-2000ES)
		CEA1338	Accessory Assy (GM-2000EW)
		CEA1339	Accessory Assy (GM-2000UC)
		CEA1340	Accessory Assy (GM-1000ES)
		CEA1342	Accessory Assy (GM-1000EW)
		CEA1343	Accessory Assy (GM-1000UC)

Mark	No.	Part No.	Description
	5-1	CDE2106	Cord (GM-2000/ES)
		CDE2105	Cord (GM-2000/EW)
		CDE2107	Cord (GM-2000/UC)
		CDE2110	Cord (GM-1000/ES)
		CDE2109	Cord (GM-1000/EW)
		CDE2111	Cord (GM-1000/UC)
	5-2	CDE1997	Cord Assy (GM-2000)
		CDE1840	Cord Assy (GM-1000)
	5-2-1		Cord (GM-2000)
	5-2-2		Cord (GM-2000)
	5-3	CDE2018	Cord (GM-2000)
		CDE1836	Cord (GM-1000)
	5-4	CDE1846	DIN Connector (GM-2000/EW)
		CDE1847	DIN Connector (GM-1000/EW)
	5-5		Screw Kit
	5-5-1	BMZ50P060FZK	Screw (×4)
	5-5-2	BTZ50P160FZK	Screw (×8)
	5-6	CEA1345	Cover Assy (GM-2000)
	5-6-1		Cover (GM-2000)
	5-6-2		Cover (GM-2000)
	5-7	CNC2099	Bracket(×2)
	6	CHL1468	Contain Box (GM-2000/UC)
		CHL1465	Contain Box (GM-1000/UC)

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Mark	Circuit Symbol & No.	Part Name	Part No.
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS222JL
	R 88 89		RD1/4PS472JL
	R 90		RD1/4PS123JL
	R 91 150		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 93		RD1/4PS822JL
	R 94 95 135 137 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 150		RD1/4PS100JL
	R 151		RD1/4PS100JL
	R 152 153		RS1P152JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23. 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2
	C 11 12 19 20		CEKA100M16
	C 13 14		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 38 39	2200µF/25V	CCH1027
	C 40 47 50	470µF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 42 43 45 46		CEA101M10L2
	C 48		CEA221M10NPLL
	C 49	470µF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	1500µF/16V	CCH1021
	C 66 67	2200µF/25V	CCH1022
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78		CQMA103K50
	C 80	(ES)	CEA100M16L2
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22µF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50

20. PACKING METHOD

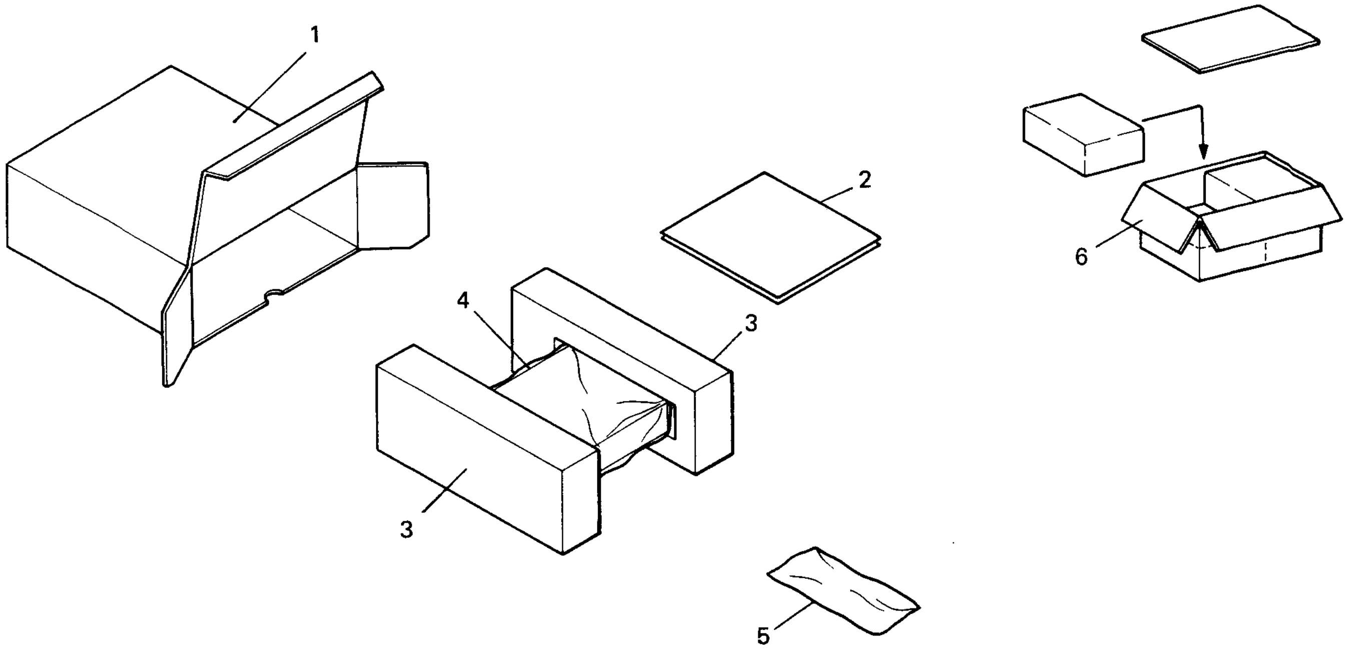

Fig. 33

- Parts List

Mark No.	Part No.	Description
1	CHG1469	Carton (GM-2000/ES)
	CHG1467	Carton (GM-2000/EW)
	CHG1468	Carton (GM-2000/UC)
	CHG1466	Carton (GM-1000/ES)
	CHG1464	Carton (GM-1000/EW)
	CHG1465	Carton (GM-1000/UC)
2	CRD1203	Owner' s Manual (GM-2000/ES)
	CRD1200	Owner' s Manual (GM-1000/ES)
		(English , French , Spanish , Arabic)
	CRD1201	Owner' s Manual (GM-2000/EW)
	CRD1198	Owner' s Manual (GM-1000/EW)
		(English , French , German , Spanish , Swedish , Norwegian , Dutch , Italian)
	CRD1202	Owner' s Manual (GM-2000/UC)
	CRD1199	Owner' s Manual (GM-1000/UC)
		(English , French)
3	CHP1138	Styrofoam (GM-2000)
	CHP1137	Styrofoam (GM-1000)
4	CEG1042	Polyethylene Bag
5	CEA1336	Accessory Assy (GM-2000ES)
	CEA1338	Accessory Assy (GM-2000EW)
	CEA1339	Accessory Assy (GM-2000UC)
	CEA1340	Accessory Assy (GM-1000ES)
	CEA1342	Accessory Assy (GM-1000EW)
	CEA1343	Accessory Assy (GM-1000UC)
5-1	CDE2106	Cord (GM-2000/ES)
	CDE2105	Cord (GM-2000/EW)
	CDE2107	Cord (GM-2000/UC)
	CDE2110	Cord (GM-1000/ES)
	CDE2109	Cord (GM-1000/EW)
	CDE2111	Cord (GM-1000/UC)
5-2	CDE1997	Cord Assy (GM-2000)
	CDE1840	Cord Assy (GM-1000)
5-2-1		Cord (GM-2000)
5-2-2		Cord (GM-2000)
5-3	CDE2018	Cord (GM-2000)
	CDE1836	Cord (GM-1000)
5-4	CDE1846	DIN Connector (GM-2000/EW)
	CDE1847	DIN Connector (GM-1000/EW)
5-5		Screw Kit
5-5-1	BMZ50P060FZK	Screw (×4)
5-5-2	BTZ50P160FZK	Screw (×8)
5-6	CEA1345	Cover Assy (GM-2000)
5-6-1		Cover (GM-2000)
5-6-2		Cover (GM-2000)
5-7	CNC2099	Bracket(×2)
6	CHL1468	Contain Box (GM-2000/UC)
	CHL1465	Contain Box (GM-1000/UC)

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS222JL
	R 88 89		RD1/4PS472JL
	R 90		RD1/4PS123JL
	R 91 150		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 93		RD1/4PS822JL
	R 94 95 135 137 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 150		RD1/4PS100JL
	R 151		RD1/4PS100JL
	R 152 153		RS1P152JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23. 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2
	C 11 12 19 20		CEKA100M16
	C 13 14		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 38 39	2200 µF/25V	CCH1027
	C 40 47 50	470 µF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 42 43 45 46		CEA101M10L2
	C 48		CEA221M10NPLL
	C 49	470 µF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	1500 µF/16V	CCH1021
	C 66 67	2200 µF/25V	CCH1022
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78		CQMA103K50
	C 80	(ES)	CEA100M16L2
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22 µF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50

20. PACKING METHOD

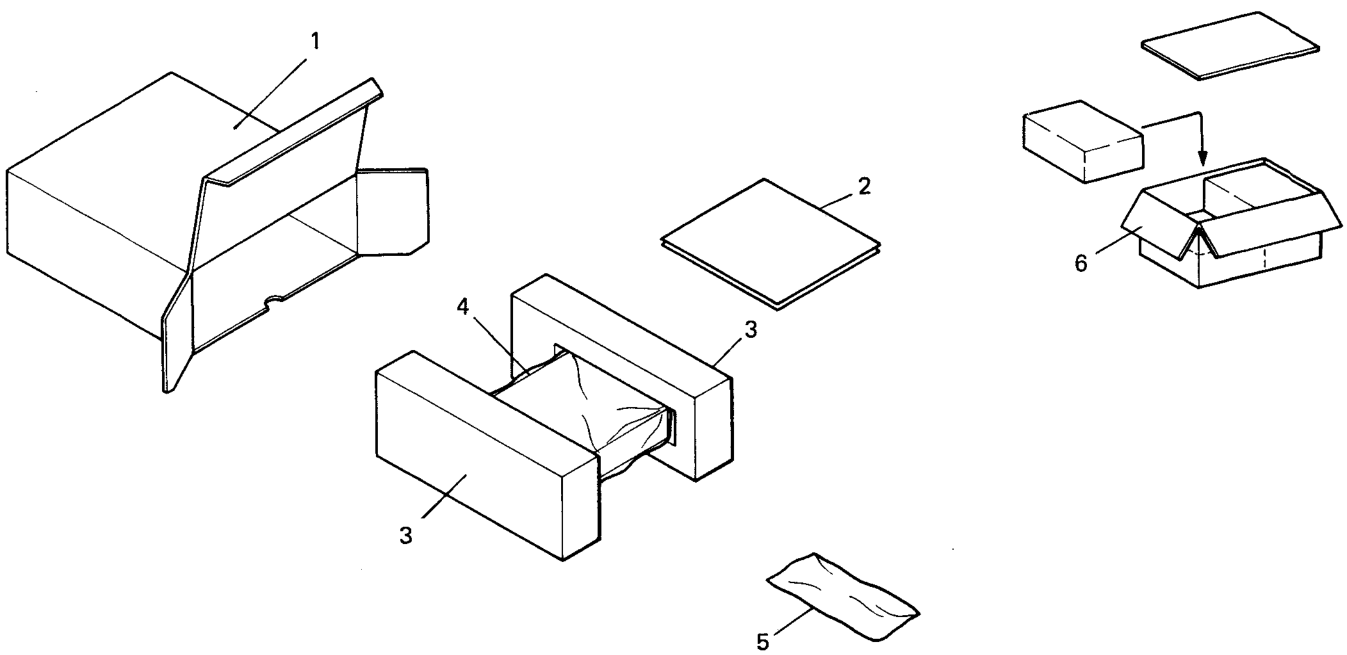

Fig. 33

● Parts List

Mark	No.	Part No.	Description
	1	CHG1469	Carton (GM-2000/ES)
		CHG1467	Carton (GM-2000/EW)
		CHG1468	Carton (GM-2000/UC)
		CHG1466	Carton (GM-1000/ES)
		CHG1464	Carton (GM-1000/EW)
		CHG1465	Carton (GM-1000/UC)
	2	CRD1203	Owner' s Manual (GM-2000/ES)
		CRD1200	Owner' s Manual (GM-1000/ES)
			(English , French , Spanish , Arabic)
		CRD1201	Owner' s Manual (GM-2000/EW)
		CRD1198	Owner' s Manual (GM-1000/EW)
			(English , French , German , Spanish , Swedish , Norwegian , Dutch , Italian)
		CRD1202	Owner' s Manual (GM-2000/UC)
		CRD1199	Owner' s Manual (GM-1000/UC)
			(English , French)
	3	CHP1138	Styrofoam (GM-2000)
		CHP1137	Styrofoam (GM-1000)
	4	CEG1042	Polyethylene Bag
	5	CEA1336	Accessory Assy (GM-2000ES)
		CEA1338	Accessory Assy (GM-2000EW)
		CEA1339	Accessory Assy (GM-2000UC)
		CEA1340	Accessory Assy (GM-1000ES)
		CEA1342	Accessory Assy (GM-1000EW)
		CEA1343	Accessory Assy (GM-1000UC)

Mark	No.	Part No.	Description
	5-1	CDE2106	Cord (GM-2000/ES)
		CDE2105	Cord (GM-2000/EW)
		CDE2107	Cord (GM-2000/UC)
		CDE2110	Cord (GM-1000/ES)
		CDE2109	Cord (GM-1000/EW)
		CDE2111	Cord (GM-1000/UC)
	5-2	CDE1997	Cord Assy (GM-2000)
		CDE1840	Cord Assy (GM-1000)
	5-2-1		Cord (GM-2000)
	5-2-2		Cord (GM-2000)
	5-3	CDE2018	Cord (GM-2000)
		CDE1836	Cord (GM-1000)
	5-4	CDE1846	DIN Connector (GM-2000/EW)
		CDE1847	DIN Connector (GM-1000/EW)
	5-5		Screw Kit
	5-5-1	BMZ50P060FZK	Screw (×4)
	5-5-2	BTZ50P160FZK	Screw (×8)
	5-6	CEA1345	Cover Assy (GM-2000)
	5-6-1		Cover (GM-2000)
	5-6-2		Cover (GM-2000)
	5-7	CNC2099	Bracket(×2)
	6	CHL1468	Contain Box (GM-2000/UC]
		CHL1465	Contain Box (GM-1000/UC]

6

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 85 100 101 102 104 108		RD1/4PS103JL
	R 86		RD1/4PS222JL
	R 88 89		RD1/4PS472JL
	R 90		RD1/4PS123JL
	R 91 150		RD1/4PS331JL
	R 92	Posister	CCX-016
	R 93		RD1/4PS822JL
	R 94 95 135 137 145 149		RD1/4PS472JL
	R 96		RD1/4PS104JL
	R 99	(ES EW)	RD1/4PS152JL
	R 105 106		RD1/4PS392JL
	R 109 110 123 125		RD1/4PS103JL
	R 124		RD1/4PS473JL
	R 130		RS1/2P561JL
	R 131		RN1/4PC1004D
	R 132		RN1/4PC1502D
	R 134		RD1/4PS682JL
	R 136		RD1/4PS393JL
	R 143 144		RS1/2P220JL
	R 150		RD1/4PS100JL
	R 151		RD1/4PS100JL
	R 152 153		RS1P152JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1 2	(ES UC)	CEKA100M16
	C 3 4	(ES EW)	CEKA100M16
	C 5 6 23. 24		CKCYB471K50
	C 7 8		CEA471M10L2
	C 9 10		CEA010M50L2
	C 11 12 19 20		CEKA100M16
	C 13 14		CCCCH101J50
	C 21 22		CEA221M6R3L2
	C 25 26		CCCCH330J50
	C 27 28		CQMA683K50
	C 29 30		CQMA333K50
	C 31 32		CQMA102K50
	C 33 36 64 65		CQMA223K50
	C 34 79		CEA100M16L2
	C 38 39	2200μF/25V	CCH1027
	C 40 47 50	470μF/16V	CCH-114
	C 41 53		CEA101M16L2
	C 42 43 45 46		CEA101M10L2
	C 48		CEA221M10NPLL
	C 49	470μF/16V(ES EW)	CCH-114
	C 51		CEA2R2M50L2
	C 52		CEA101M10L2
	C 54		CKPYB102K50L
	C 56 57		CEAUH470M25
	C 58 59 60 61		CEAUH101M10
	C 62 63	1500μF/16V	CCH1021
	C 66 67	2200μF/25V	CCH1022
	C 68 69		CQMA104K50
	C 70		CQPA102J2A
	C 71		CEAUH101M16
	C 72		CEAUH2R2M50
	C 73		CEHAQ471M10
	C 76 77		CEA471M25L2
	C 78		CQMA103K50
	C 80	(ES)	CEA100M16L2
	C 81 82		CCCCH101J50
	C 83		CEA101M10L2
	C 85 86	22μF/10V	CCH1035
	C 87	(ES EW)	CQMA103K50